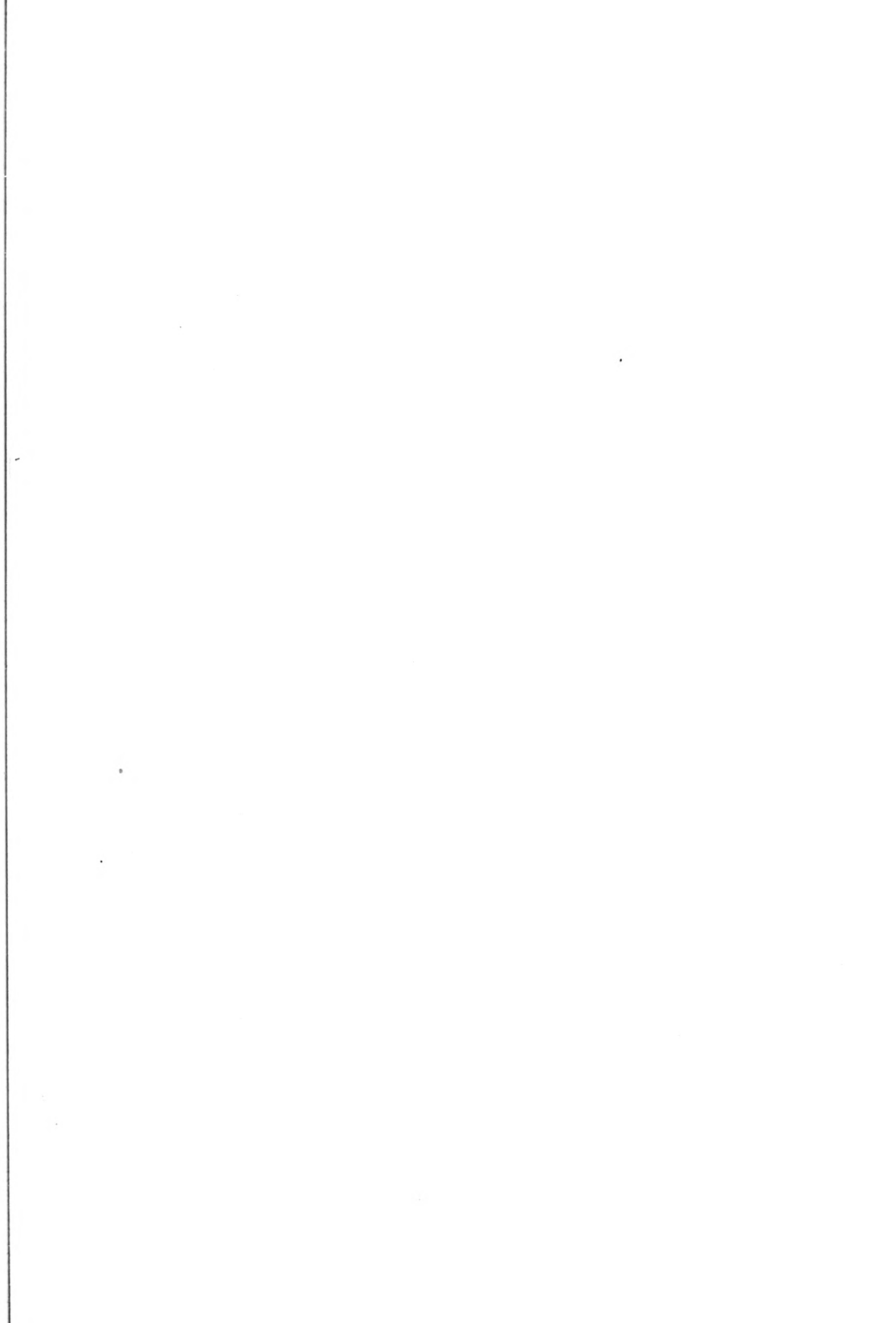




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A JOURNEY THROUGH SOMALILAND AND SOUTHERN ABYSSINIA TO THE SHANGAILA OR BERTA COUNTRY AND THE BLUE NILE AND THROUGH THE SUDAN TO EGYPT.

By DR. REGINALD KETTLITZ, of Dover.

[Addressed to the Society, in the Manchester Coal Exchange, Friday, March 9th,
1900, at 7-30 p.m.]

ABYSSINIA, the ancient Ethiopia, historically a land of many mysteries (which contains one of the sources of the Nile), the land of many glorious mountains and the seat of tremendous volcanic activity within geologically recent times, the highlands and Switzerland of Africa, had always had a great attraction for me, therefore, when I was offered an opportunity for visiting it, the offer was too tempting to refuse, and when it was also proposed that we should travel across the southern, less visited portion, from east to west, and return *viâ* the Sudan and Egypt, it could not be resisted.

Mr. Weld Blundell's expedition consisted of five white men, himself, Lord Lovat his nephew, Mr. Harword a taxidermist, a valet to act as camp major-domo, and myself. Our coloured attendants were numerous and varied in number.

The objects were to map the country, especially the portions which had not been visited before by white men; to investigate the geological formation, make zoological collections, especially an ornithological one; and make as many anthropological and ethnological observations as possible. It was proposed that we should travel continuously, so that we should get back again in about six months.

Mr. Weld Blundell had been in the country before, having, in fact, returned from Addis Abbaba in the July previous. He

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had accompanied Captain Harrington, the British representative to the court of King Menelik, upon his journey to Addis Abbaba for the purpose of establishing the agency there and presenting his credentials to the King. The experience gained upon that journey gave him the requisite knowledge as how to proceed, and enabled him to make all the necessary preparations, in the most expeditious manner, for the journey we now proposed to make. We met at Aden at the end of November, 1898, and, after some days, occupied in hiring Somali servants, buying a few more necessities, waiting for our baggage from England which had been delayed, writing letters, as well as making arrangements for crossing the Gulf of Aden, we crossed to Berbera on the Somali coast, there we hired camels for our caravan, bought ponies and mules, as well as hired more Somali servants, and on December 6th started upon the first stage of our journey—to Harrar.

Berbera was selected as our starting point, so that we might avoid the long, monotonous, hot, and disagreeable desert route from Zeyla, which is the usual and nearest port for Harrar, for though the distance from Berbera is forty miles longer, yet our road passed through so much more varied, more elevated, and therefore cooler country, where game also is more plentiful, it was thought that we should thus be compensated for the greater distance we had to traverse. Part of our baggage and supplies were forwarded by the regular supply caravan, *viâ* Zeyla, to meet us at Harrar, while a further supply was to go on to Addis Abbaba. Notwithstanding this, however, when we left Berbera our caravan consisted of some thirty-five pack-camels with eighteen attendant drivers, our head man, ten personal servants, four Sudanese soldiers (who had fought at the battle of Omdurman and who had just got back to Cairo, where Mr. Weld Blundell hired them) to act as escort, a donkey as bait for lions should we come across any, some sheep and goats for food on the journey, besides the four ponies and a mule which carried us.

Berbera town, as is well known, consists of two portions about a mile apart. It is situated upon the coast, and built upon the low-lying coral-sand desert which fringes the coast everywhere here, and which has evidently comparatively recently risen above the sea level; a spit of sand juts out into the sea and encloses a shallow bay, which forms a fairly good harbour.

The western and better built portion is where the British Resident resides; here also are the travellers' rest-house or bungalow, the barracks, post-office, mosque, hospital, besides other stone and sun-dried brick buildings, built by the Egyptians when they occupied the country. The eastern part of the town is where the merchants' offices and Jewish and other tradesmen's bazaars are, as well as where the natives live;

between the two, are the temporary encampments of the caravans of the natives from the interior. In this native encampment I had an opportunity of seeing the Midgan* blacksmiths and artificers at work. They were making spears, Somali swords, axes, knives, and many other things. Their forge was constructed after the widespread African method, the fire made in a hole in the ground, down to which an earthenware tube led, which was connected with two wide-mouthed jars; to these, in order to close them, loose leather bags were firmly attached all round the edges. To the centre of these bags sticks were vertically fastened, and these being alternately raised and lowered



OUR CARAVAN EN ROUTE.

by the man operating with them, a draught of air was produced in the same way as from bellows, and thus the iron was heated in the fire.

What most interested me was the expertness which they showed in applying the fine brass wire round the spear heads and upper parts of the shafts. This is put on so as to assume different patterns in numberless variety for the purpose of ornamenting them. It was done very expeditiously with the hands and feet, for the feet are used almost as much as the hands, in order to hold and rotate the spear while the wire is

* The Midgans are an outcast tribe of Somalis, and are pagan.

being put on. The manner in which the ornamentation of the handles of the short Somali sword is produced was also not a little remarkable, for each mark upon them is made by separate pieces of the different metals and horn being threaded upon a central iron rod attached to the blade and hammered tight. When all is finished and firmly fixed, they file and polish the whole smooth. These ornamental handles are very much prized by the Somalis, and therefore have a very ready sale.

After a short delay in Berbera we started, as already remarked, on the afternoon of the 6th December. We started thus late in the day because we wanted to get our Somali men away from the town, for these people are like children, have no idea of responsibility and the necessity of keeping their time and being ready, so by doing this we had them together in readiness for an early start on the morrow.

Our way at first led over the belt of stony sandy desert which fringes the coast for some ten or twelve miles inland—our course was S.W. Not a blade of grass or bush was to be seen while going over this, but, when these ten or twelve miles were traversed, stunted mimosa and other thorny shrubs began to appear, and gradually became numerous; odd tufts of grass could be seen, antelopes bounded off out of the way and out of gunshot. The pretty little dik-dik was one, the elegant speke's gazelle and the madoqua were others, while ground squirrels, gerboas, and hyraxes were caught sight of, and the birds were represented by the sand-coloured desert lark and odd vultures. The jackal, so hated by the Somalis, was also seen sneaking away under the bushes.

All this time the ground was rising, though imperceptibly, and before the second day was over we got into more rocky, stony country, the rocks being composed of handsome salmon-coloured and other granites, syenites, quartzites, and schists. Here the vegetation became more varied, more bushes and odd trees, all of thorny varieties of acacias, cacti with peculiar sooty ball-like flowers of cricket-ball size, varieties of aloes, and other kinds of plants gradually became more numerous; and with the vegetation more birds, such as wheatears, weaver-birds, and others. Dry beds of watercourses had to be crossed, and the ground alternated with rocks and loose, sharp-cornered gravel very frequently.

Every now and then we would meet native caravans with camels laden with the household utensils and the huts of the men, women, and children who were on their way to the coast for the rice and dates which hold so large a place in their daily regimen. Cows, sheep, and goats were being driven along with them, and were to be disposed of for the purpose of obtaining the necessary money for the purchases they wished to effect.

On the way we camped at Hamas, a place at the base of

some flat basalt-topped hills. In the morning early one of our men was stung by a scorpion, a big one, which I prevented from again doing any injury by putting him in a bottle for preservation.

During the day we passed a place called Addi Adeya. For Somaliland, this is a place for luxuriance of vegetation, trees of more variety, including palms, were scattered about the banks of the dry river beds, in the sand of which, by digging holes, water could be obtained; and there was much grass in patches under the bushes and trees, this, together with the bushes themselves, gave pasture to the large flocks of sheep and goats, which, with their attendants, and with some cattle and camels, were covering the ground. This place, having so much pasture, is often resorted to by these wandering people, and has suggested its name, Addi Adeya, which means "White with flocks."

Here we had already arrived at the elevation of 2,700 feet above sea level, and the nights were comparatively cool, the evenings were remarkable because of the swarming moths which flew about the fires and lights incessantly, many of them were like our ghost moths.

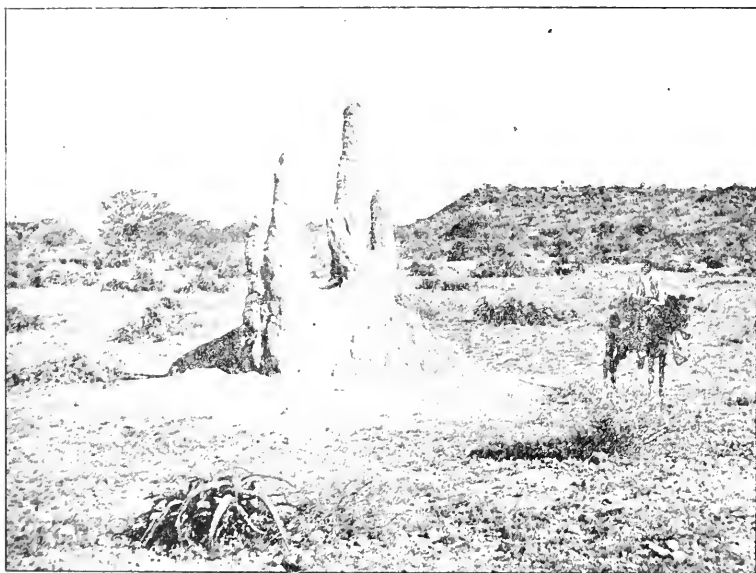
In the cool of the morning we generally walked, and one or two carried guns for the purpose of bagging a few of the numerous partridges which are so clamorous at that time. Franklin partridges, guinea-fowl, and an odd bustard would also occasionally be added to our larder.

During our daily marches dik-diks (*Neotragus saltianus*) and geranook (*Lithocranius walleri*), antelopes, rock squirrels, and rock rabbits or hyraxes, warthogs, an old hyena, and desert rat would be caught sight of; while birds became increasingly varied and numerous, parrots, toucans, rollers, sunbirds, beautifully-coloured starlings, besides partridges, guinea-fowl, and bustards, together with Egyptian and other vultures and an occasional golden eagle—a pair of which we once saw nesting in a tree—these engaged our interest and relieved the monotony of the march.

During the night at our next camp, Jummat, we were startled by a rather awkward visitor in the shape of a leopard. He had suddenly leaped into the small zereba in the middle of the camp where the sheep were confined, and before the Sudanese soldier who was on the watch could get his rifle ready, had carried away a sheep out of the camp. A couple of hasty rifle shots in the darkness, although apparently without having other effect upon him than to scare him, induced him to drop the sheep and take to flight without his prey. The sheep was, however, dead, for he had seized it by the throat. When making his exit from the camp he had got foul of the ropes of one of the tents and had caused it to collapse upon the man inside, but otherwise no damage had been done.

When we got as far as Gelele we caught sight of the Nasha Habalo hills. These are a landmark, for they can be seen for a great distance all round, and are near Hargaisa.

The country about here is very much sprinkled with the extraordinary obelisk-like white-ant or termite heaps. These take all sorts of fantastic forms, but here they always have a columnar shape, which is quite different to that seen some three weeks later near the Hawash river in Abyssinia, yet in similar country. Why they should be so different is not easily accounted for, unless they are of different species, but the reason they assume that shape is because these termites attack the trunks



TERMITE, OR "WHITE ANT" HILLS.

of trees in order to devour the wood. They do this by enveloping the trunk of the tree in the clay mass to a considerable height. In the course of time the tree is killed and devoured, in fact, disappears, but the columnar ant heap remains. In the the Hawash valley the heaps take more the shape of steep-sided mounds, of from three to five feet high. This shape appears to come about because the ants there attack a bush which they gradually envelop with clay in a similar manner as that of the others; so, in order to make short work of it, they do not cover the short and narrow trunk and branches, but take it as a whole. I saw bushes being covered up and disappearing in this way.

Hargaisa, a more populous part of the country, is a more or less level plain, which appears to have been a large lake in times gone by. This lake has been silted up in the course of time. It is entirely composed of alluvium, to what depth it would be difficult to say; but that it is considerable is easily seen in the sections which the torrential rains have cut through it, in the of deep, steep-sided watercourses and river beds. These are sometimes from thirty to even fifty feet in depth, and for the most part have perpendicularly precipitous sides. In some parts of the country near here these are so numerous as to form a perfect network or maze, which, when once among, is most difficult to get out of for any one that does not know the country intimately.

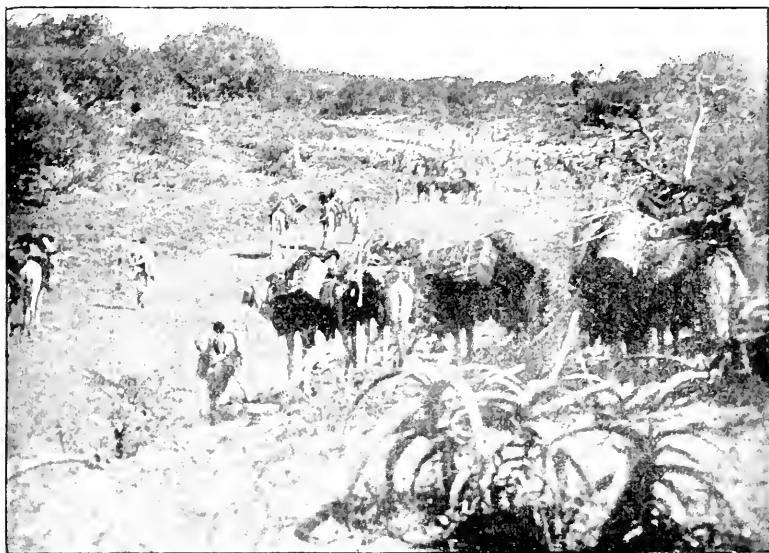
There is a fair amount of game to be found generally at this place — gazelles and antelopes of all kinds, lions, leopards, elephants also, but when we were there most of them seemed to have left the country, and no sportsman was successful. Old tracks of elephants, but no other sign. Close to our camp there several large tortoises were discovered. I measured the largest and found it to be 29 inches over the back, 18 inches under the belly, and 40 inches in girth.

The place was alive with birds in great variety and remarkable beauty in the colours of their plumage—the lovely azure blue roller, the gloriously iridescent metallic green and blue blacks of several varieties of starlings, the gorgeous greens of the parrots, the beautiful browns, goldens, and buffs of the sunbirds were specially noticeable; while the pretty long-tailed sparrows, the toucans, weaver-birds, shrikes, doves, and numerous other birds always gave one something to gaze at and to delight the eye.

Travellers have been so apt to describe the birds as beautiful, but as having fearful and discordant voices and cries, but my experience has not borne out this, for though the parrots and one or two other birds emit sounds that are the reverse of musical, yet by far the larger number have notes which are sweet, or interesting, certainly not discordant and ear-splitting. Most remarkable in sound, perhaps, of all the birds is the bell-noted shrike or anvil bird. The sounds which this bird utters are extraordinarily like those of the blacksmith when striking his anvil at some distance—the notes are very searching, full, clear, and musical. Some of us got tired of these sounds after a time, but, for my own part, I never heard them without being filled with wonder and interest, they are so clear and sonorous.

One often sees a bird or other animal vigorously scratching and digging in the soil to find food, make a burrow or cover something over; but one day while halting for lunch we were impressed with seeing a very vigorous fly, of no great size, working most energetically in doing the same. It was evidently

burying something, what it was we could not discover; but turning its back to a small hole which it had probably excavated, and by holding itself firmly with its four hinder legs, it very rapidly cast sand and loose soil with its two fore legs under its body, between the hinder legs to the back of it, into the hole. The vigour it exhibited in this work was remarkable, every now and then it would turn round and examine how the work was progressing, and, not satisfied, resume it again. It did not cease until the depression was covered up level and quite obliterated. I tried to catch it for preservation, but its wariness and quickness was as remarkable as its performance, for in the



GREAT GATHERING OF FLOCKS FOR WATER AT JIBULL.

end it disappeared down a large ants' hole, and with all my digging I could not reach it.

From Hargaisa we diverged from the main route and made our way to Jeŕr Auri and Jeŕr Medir in the hope of finding game, for it was said to be plentiful about there. We went through Darbolek and Arabsyu, the latter place being crowded with flocks and herds, besides many people. On the journey there we saw a flock of tame ostriches which were being farmed by one of the Midgans. He kept them from straying by means of hobbling them above the heel of their legs, that is, at the lower part of the *thigh* of the bird, as it is generally called. Odd antelopes were seen, the oryx (*Oryx beisa*) among the number,

and several fell to our rifles. After passing Arabsyu we went on, *viâ* Jibuli. Here, again, was a great gathering of flocks and herds which had been driven a great distance for water, found by digging holes in the sand of the river bed at this place. The peculiar Somali fat-rumped, black-headed sheep, the small white nimble goat, and the humped Somali cattle were here in great force, and there was a great scramble and a lot of excited gesticulation when the separation of one owner's animals had to be effected from the others.

Soon after we passed here, having heard that a lion paid nightly visits to a village near by in order to steal a sheep or



SOMALI SHEEP.

goat, Mr. Blundell separated from us for the purpose of sitting up at the village and waiting for its next visit, which was expected that night.

He took with him the devoted donkey, as bait, but the next day he rejoined us at Jejr Auri, having been disappointed, for no lion put in an appearance.

After going to Jejr Medir (both Jejr Auri and Jejr Medir are hills which are rocky bosses of sandstone schist and granite, which protrude from the more or less level surface of the plain) we crossed the Meran prairie—sometimes called the Bund—to Jigjigga. The prairie is an almost level stretch of treeless coarse grass land, 5,374 feet above the sea, and very different to the

country we had to come through since leaving Hargaisa. This had been less arid and stony; the ground was covered with a good deal of sandy soil and thorny acacias, cedars, and other trees, with aloes; many other plants and grass clothed the surface and formed a more or less continuous open "bush" or wood. Soon after leaving Jeŕ Medir this wooded condition came to a rather abrupt termination and gave place to a stretch of thirty or forty miles of almost flat grass land, with only odd trees here and there at about the centre of it near some knoll-like hills which rise from the level plain. Mirages, as might be expected, were very common here; lovely visions of lakes of water were



JEŦ MEDIR.

spread out at no great distance from us and looked very real. The grass at this time was dried up and shrivelled to a yellow colour, yet countless numbers of antelopes of all kinds could be seen feeding in company together all round between us and the horizon. Many fell to our rifles, though nearly all had to be long range shots: among them were hartebeeste (*Bubalis swaynii*), oryx (*oryx beisa*), and aoul (*gazella sømmeringi*).

This stretch of flat plain appears to me to be simply a basalt plateau which has not been elevated in the same way as the hills round; masses of rock, almost certainly *in situ*, slightly protrude above the surface, but only rarely; nearly the whole

was covered with soil, and the few loose stones to be seen were also basaltic.

I ascended one of the hills some 400ft. higher than the plain situated about half way across. This I found to be also basaltic, but a peculiarity of the basalt was that filling up many of the fissures in the rock was a mortar-like calcareous substance containing pebbles, which resembled and was of the consistency of chalk.

One of the features peculiar to the prairie was the number of grasshoppers and locust-like insects which swarmed there. It was here that I first noticed the bird-like flight of these; not only do they fly straight and swiftly but they turn and dodge to one side so as to avoid one when they approach; this is done very swiftly and they are exceedingly difficult to capture. Many of them have their under-wing coloured a rose colour, so that when they are spread out as in flight, this colour is very conspicuous and striking.

For several nights before our arrival at Jig-jigga the temperature after sundown had begun to become cool, and even cold, for we had arrived at a considerable altitude above sea level, the height as shown by boiling point being 5,374ft.; the temperature in the day was, however, not excessive, averaging rather under than over 80°, while at night it sank under 44°. Our Somali servants, therefore, in the chill of the morning were rather pitiable objects, for until the sun's heat warmed them and surrounding objects—as their clothing is nothing but thin cotton—they felt it acutely. Jig-jigga, where we arrived on the evening of the 22nd of December, is the name of a place and station situated upon a small river which forms the boundary line between British and Abyssinian territory. At this place its course is more or less south near the base of the Mardo range of hills, which range forms a natural frontier which can only be crossed here by steep and rugged passes over it.

Our course until now had been roughly south-west, though we had diverged somewhat in the hope of coming across game, lion and elephant especially. Though antelopes had been plentiful, in this last we were unsuccessful, for no lion or elephant was either seen or heard, while all tracks seen were not of recent date.

At this point we had our first introduction to the Abyssinians, for here they had a military station in the form of a stockaded compound in which were a number of toukuls or primitive circular huts, made of mud-plastered sticks and roofed with thatch, the roof being of the common conical form. These stockades are characteristically Abyssinian, being made of sticks of all lengths firmly fixed into the ground and strongly interlaced to form a fairly compact wall. Some of the toukuls were the residences of the chief and head officials, while others were

store-houses, for this is a station where customs are levied upon all merchandise coming into the country.

We were courteously received by the Abyssinian Chief, who called upon us in the usual state, that is, he rode upon a pony while a numerous retinue of men armed with rifles and on foot accompanied him and awaited his return; presents, such as sheep, goats, fowls, eggs, milk, and tedge* were given, and return gifts were presented by us, while, hearing that we had a letter



SOMALI WOMAN.

of and permission to travel in the country from King Menelik, no opposition was made to our progress.

Our journey to Fiambiro, a market place and trading centre about two days' journey into Abyssinian territory, was through very different country to that which we had until now passed through; brooks and streams intersected the land after we had crossed the rocky Mardo range, and watered it; hence villages and patches of cultivation dotted the landscape.

* Tedge is a fermented drink, made from honey and water.

The houses forming the villages also indicated a condition of more settled and regular pursuits, for though they were still surrounded by stockades or zerebas, some of them were not, and the huts, instead of being mere temporary shelters, such as the Somalis use, were the permanent conical-roofed, circular-shaped Abyssinian and Galla toukul. At this time also the harvest had been just gathered in, hence there were large heaps of ears of grain, dhurra, hadoti, teff, and other kinds, arranged outside many of the houses, while the recently cropped fields were



SOMALI YOUTHS.

yellow with the five to eight or more feet high stalks from which the ears of corn had been cut and were allowed to remain standing as they grew.

Our road, if such the unmade path or worn track can be called, led up rocky ascents and down extraordinarily steep descents, as well as heavily undulating ground, much of it cultivated in terraces upon the hillsides and reminding one of the vineyards of the Rhine and Mosel, until after a steep very rocky ascent, up which the laden camels found it most difficult to

climb, we reached the summit plateau upon which Fiambiro is situated; this is 6,403ft. above sea level.

This plateau is studded with small villages and habitations, while the village of Fiambiro is simply a conglomeration of the temporary huts of the Somalis who come here to trade. Sheep, goats, cattle, donkeys, and camels, as well as grain, red pepper and other foodstuffs, also cotton cloths of all kinds, are the principal wares exposed in the market, which at this time was being held every day. A more or less ruinous conical tomb of a holy sheik is placed upon a conspicuous position here.

The geological formation of the country is very heterogeneous and diversified, for it is broken up in a chaotic manner; basaltic

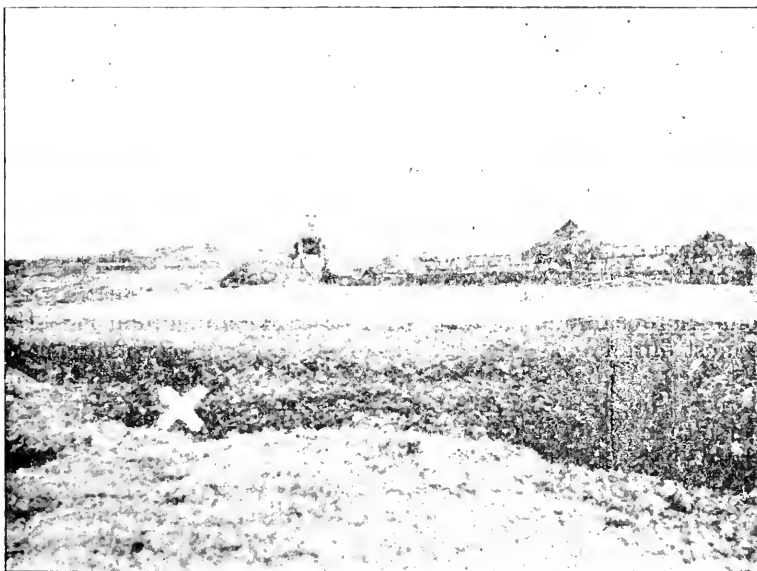


SOMALI VILLAGE.

layers interbedded with tuffs were to be seen in different places at all levels, but, where in any mass, generally in more or less parallel layers; underlying this in a few places some beds of a calcareous but unfossiliferous sandstone could be seen, and under this again granites, syenites, porphyries and schists tilted at all angles, even almost vertically, and with a general tendency to dip to the north-east, intersected in all directions with dykes of quartz, biotite and similar rock, formed the main mass and foundation of the whole. Needless to say this diversity in level is caused through the breaks or faults which have broken up the surface, and this again has caused the magnificent scenery

which is here presented to the view, but to which also are due most of the many difficulties with which the road of the traveller is beset.

At Fiambiro we spent Christmas Day, and it was occupied by paying off our Somali camel drivers who were to return to Berbera from here with the camels, for, the country being too hilly and mountainous for these animals, our baggage was transferred to the backs of mules, a number of which were awaiting us by arrangement by letter and messenger sent on before to Harrar, and with which our caravan was in the future to be made up. Needless to say there was much excitement,



MCKELVY AND ARCHBISHOP'S (PRIMATE'S) PALACE ON THE RIGHT.
THE KING'S COMPOUND IN THE DISTANCE.

gesticulation, and chatter while all this business was going on, and many the requests for backsheesh which were advanced by the departing camel men.

Many of the baggage mules we used were Mr. Weld Blundell's property, having been bought by him on his former visit, and kept with others by Capt. Harrington at Addis Abbaba, from whence they had been sent to meet us. In charge of these, and their attendant drivers, was an extraordinary figure, McKelvey, the Abyssinian Englishman. This man, though white, was attired in every respect just the same as an Abyssinian; his head was shaved and bound up in a white cotton cloth, as

is so common among the Abyssinians; upon it was the usual terrai-like hat so frequently used by these people; the shamma or long cotton cloth worn as a shawl or toga fashion over his shoulders; the short narrow-legged cotton pantaloons, and nothing upon the lower legs and feet. Under the shamma he also wore a cotton shirt, and that is all. This man had now become one of the interpreters of the British Agency. He had been one of the original prisoners at Magdala; had been tortured like the rest, the scars of which he still retains; he had been rescued with the others, but after having returned as far as Alexandria had elected to go back to Abyssinia and become an Abyssinian, and there he had remained ever since—37 years. When Mr. Harrington first found him he had almost forgotten his native language, but soon picked it up again when he once more heard it spoken by others.

All these years he had lived in the barbarous fashion of the natives; he had served King Theodore and King John as a soldier, but most of his time had been spent in making a living as a merchant—a kind of hawker who takes his wares upon pack-mules from place to place, attends the markets, and there disposes of his goods. He had thus travelled all over the country.

Needless to say his moral condition has sunk; not only has he the vices of the Abyssinian, but combined with these are some European ones, and there are no redeeming qualities. He is most unreliable, a perfect yet plausible humbug and cheat. When at Addis Abbaba I visited his house; this is in not the slightest degree better than that of the natives—in fact, it is worse than many of them. There is no furniture whatever—no seat or bedstead; he, like most of them, squats upon the ground upon a goat's or cow's skin, and the bed is the ground, though slightly raised above the general surface. A more comfortless existence it would be difficult to imagine. He has many children by native wives, the last of which, nine months old, whose mother is a typical negress, was quite white and indistinguishable from the child of a European mother.

Through having travelled so much he was of considerable use to us as guide, as well as interpreter, but after some experience with him, through his puerile quarrels with the native head-men we had to dispense with his services. He also had all the native fears, but exaggerated, with regard to going into an unknown country.

The Abyssinians, as is well known, are Christians, but their Christianity is more in name than in fact; they, however, take a real pride in calling themselves such, and indeed it is very remarkable that, surrounded as they are, and have been for hundreds of years, by Mohammedan and heathen neighbours, they have so stubbornly adhered to it.

Their religion practically is restricted to the keeping of feast and fast. Church attendance is practised only by very few, while the ministrations of the priests are costly, and, as the people say, can only be indulged in by the rich.

Very little trade, agriculture, or other art is carried on by them. The Abyssinian is a soldier, and he does little else. The women spin cotton; a few embroider in cotton and silk as well as do needlework; their principal business is to make bread, cook, fetch water, and grind the corn. Their status is, however, better than that of the females of the neighbouring races.

From here the road passed through some of the most cultivated country seen during the whole of our journey, for, especially as we neared Harrar, gardens well watered and irrigated, by water being led through gutters, which also surrounded the beds, were numerous and well stocked with cotton, red pepper, tobacco, coffee, and other vegetables, as well as bananas and other plantains and fruits.

The present town of Harrar is a walled Egyptian built town, situated upon a rise in a beautiful wide undulating fertile valley. It consists of the usual mud-plastered flat-roofed houses so affected by these people, arranged close together and intersected by steep, untidy, frequently terraced, narrow streets; a few churches, mosques, and principal buildings are to be seen, and it is the emporium of the principal trade of the country. Here are many Greeks, Indians, as well as some French, in the hands of whom most of the principal trade is carried on.

The gates of the town are guarded by a motley array of soldiers who lounge or squat about the shed-like guard-rooms at the gates, their rifles and other arms being hung upon the pegs on the walls above them. Their duty is to collect a tax or customs impost upon all merchandise and produce which comes in.

Harrar is the seat of the Governor, Ras Makonnen, whose house is one of the principal buildings of the town, and there are many bazaars, shops, and markets in different quarters.

Most of the rock near by and the stone of which the houses are built is a fine red granite.

After some days' delay here, after receiving our supplies which had been sent on before, hiring more pack-mules, receiving and answering letters as well as collecting and making scientific investigations, on the 31st we proceeded on our way, by the upper or mountainous route *via* Kunnie so as to avoid the hot desert, though shorter and more direct route.

The undulating fertile country we passed through to Lake Hanamaya we found still much cultivated; cactus bushes and creepers abounded, while specimens of the peculiar quolquol tree (*Euphorbia Candalabrum*, or *Abyssinica*) were not infrequent; some of these we saw in bloom, the beautiful rose-coloured

bunches of flowers being upon the summits of the long extraordinary candelabra-like arms.

Many of the fields and gardens were hedged round with branches of the tree planted in the ground, and they formed a very effective hedge.

For some days before, as well as after this, we were charmed to see a good number of common British plants and flowers interspersed among the other less familiar vegetation; among them the dog rose, jasmine, the wild climatis or traveller's joy, laburnum, mountain ash or rowan tree, dead nettles, scabious, and others were noted.

At Lake Hanamaya the birds were found to be so numerous and varied that it was determined to delay one day here in order to collect as many as possible, so we spent New Year's day doing so. Warblers, grey wagtails, two varieties of coote, many ducks, teal and pochard, geese, white and black ibis, stilts, sand pipers, knots, moor or water fowl and grebes, swallows, martins, and finches, were some of those seen and collected. Some beetles and other insects were also obtained.

Here the rock was still red granite, among which blocks of a black and grey coloured sandy schist were erratically intermixed, as though pieces had been included in it when in a molten state. This granite had the usual veins and dykes of biotite intersecting it, and I here saw an excellent example of how deeply it becomes weathered and acted upon by the subaerial forces, for at one spot I came upon a perpendicular-sided gully or dry watercourse twenty or more feet deep, which a deluge of rain water had washed out of the hill slope, the sides of which gully were so soft that they would crumble away upon touch. The coarser structure of the rock, with the veins and dykes, all showed perfectly, so that it was plain that it was *in situ* and otherwise undisturbed.

We then continued our journey in a W.S.W. direction along the Arussi and Itu range of mountains, in part densely wooded and abounding in apes, as well as often through park-like scenery, to Lake Chercher.

Being here a considerable altitude above the sea, between 7,000 to 8,000ft., we were subjected to extraordinary variations of temperature, for it ranged from between 75° Fah., in the day, to as low as 24° at night; thus in the morning before sun-rise hoar-frost would cover the ground, and the numbed and shivering natives, in their light cotton apparel, could do little until the sun rose and its heat revived and warmed them.

Every day our path would lead us down precipitous descents, rough and covered with large and small loose stones, as well as very dusty, into deep flat-bottomed valleys, many of which were plainly silted up lakes; again up steep ascents upon often more or less flat-topped heights; yet, though the hills were frequently

flat-topped, the outline and contour of these showed nothing characteristic of the basaltic formation as is so marked a feature in other places where this rock is common, such as those I have seen in Skye, the west of Scotland, Franz Josef Land, as well as what others tell us is the case in the Faroe Islands and other places. Here the hills had a rounded flowing outline, which forcibly reminded me of the wearing down of old ice action. I looked to see if I could find any more marked evidence in the shape of grooved and scratched boulders and stones, but in this I was disappointed. However, the weathering action in these hot portions of the earth's surface appears to me to be far greater than in the Polar Regions, where the destruction caused by this agency is said by other observers to be so marked, thus possibly destroying these characteristic features.

These hills are almost entirely formed of basaltic material, but the layers of basalt, often thick, are interbedded with enormous masses of tuffs, agglomerates, and scoriaceous rock, the first of which is frequently of a dirty yellowish-grey colour and has a strong tendency to weather a deep red; this, with the weathering of the basalt, causes the soil everywhere to be of this red colour, and make it a marked characteristic. Wherever the dip was observable it appeared to be an easy one to the N.W. (5° to 8°).

At Lake Chercher we again delayed a day because of the abundant bird-life found there; herons, geese, storks, ducks, grebes, and water fowl of many kinds were obtained. Crickets and grasshoppers abounded in extraordinary number and variety.

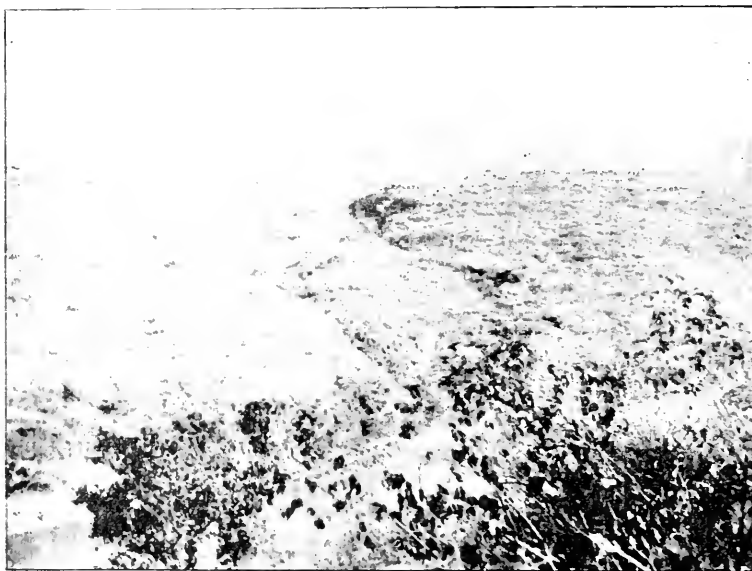
From here we went on *à* Laga Hardim, where there is a very steep, rough, rocky ascent, at the foot of which is a telephone station, one of the many situated at every two days' journey upon the line which joins Harrar to Addis Abbaba; this line of wire, which is a single one elevated upon posts, or trees, along our path, has been erected by a company principally composed of Germans, and in which King Menelik has shares; it is very badly looked after, so that more often than not it is found to be broken down and no message can be got through; we had tried at several places on our road to speak with Addis Abbaba, but until we got here were unable to do so. The stations are within large, strongly-stockaded compounds, containing a few toukuls which are little better than sheds; in this one a common deal-wood, rickety table, a case as a chair, an electric battery, and a few sheep and cow skins formed the only furniture; patience, very long suffering, was needed before a message could be got through.

Many of the villages about our route are really permanent camps of armed men; these are always perched high upon the summit of the loftiest hills, and are quite a feature here.

After the long steep ascent we had a glorious view from the

top of miles over the Hawash river and plain, down to which a long, dusty, stony descent led; the dust and stones were due to the loose powdery tuff and scoriaceous rock of which the hills there are composed.

We made our way rapidly over the plain and river, and travelled here for the most part in the cool of the evening and till well into the night, in order to avoid the great heat of this comparatively low ground. While camped close to the river there were many alarms raised by the Abyssinians, who feared a raid from the Gallas and Danakils, who have a very bad name for this at this place. Indeed, with some reason, as a little to the



THE ABYSSINIAN PLAIN OF HAWASH. (ALARM OF RAID ON CARAVAN.)

north of where we were, a caravan had been set upon three weeks before of which twelve men had been killed.

On one occasion great excitement was caused by men having been seen dodging about suspiciously among the bushes not far away, and was augmented by a large party of armed men being seen coming towards us some distance away, who were thought to be coming to attack us. Mr. Blundell led a party of our men, armed with rifles, which formed an ambuscade in a very advantageous position; the supposed hostile party, as it approached, was hailed and ordered to halt and explain its business, when it was discovered that they were returning from an elephant

hunt in which they had been successful, so they were allowed to pass, and we were never molested.

After quickly traversing the Fantallé hills, and the Kassim valley, we arrived at Godoburka; here we ascended the high rampart-like wall which forms the edge of the southern portion of the great Abyssinian plateau; this rampart-like wall had a very imposing and a typically basaltic appearance.

I may here observe that the great plain we had passed, through which the Hawash river runs, is studded to the southward with numerous, both small and large, beautifully preserved extinct volcanic craters; these are without doubt of quite recent



ABYSSINIAN ROAD.

formation, from a geological point of view. The Fantallé hills are composed of enormous masses of trachytic, andesitic lavas, tuffs, obsidian and scoriaceous material, of altogether different character to that of the basalt hills of the east, and of the rampart-like wall we had arrived at.

From what I then saw, as well as subsequently, it is very evident that this lower lying volcanic plain represents a much more recent volcanic phase of activity, which has taken effect along a line of weakness in the earth's crust running from the S.W. to the N.N.E., and which begins in the south as far as Lake Rudolf, and perhaps farther, and passes northward to

the Red Sea and Aden, as far even as the Dead Sea in Palestine. At Lake Rudolf even now, I believe, there are active volcanoes still existing.

From Godoburka we reached the higher plateau, traversed a more or less level stretch of country, thinly peopled and cultivated, and in three days arrived at Addis Abbaba, the present capital of Abyssinia.

This place can scarcely be called a town, for it consists of nothing more than a vast number of toukuls scattered, singly or in groups, over a stretch of undulating country some six miles in extent from north to south, and four to five from east to



THE BRITISH RESIDENCY AT THE ABYSSINIAN CAPITAL.

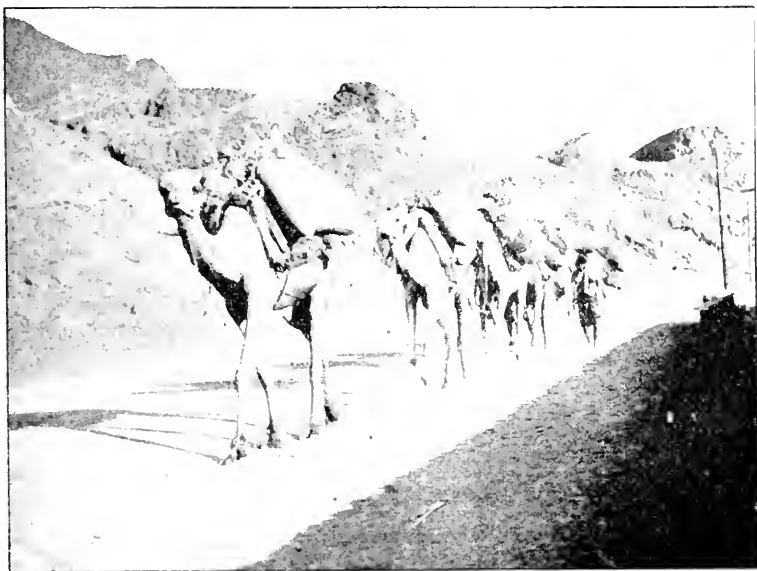
west: the surface is cut through and divided up by a number of deep, comparatively narrow, rivers or brooks; no attempt is made to bridge these, therefore steep rocky descents and ascents have to be made in order to pass from one part of the town to another.

The king's compound or gebbi occupies a prominent position in about the centre, upon a low hill which rises rather higher than the general surface; within this large compound are many toukuls similar to those of his people, yet rather larger for the most part. One or two buildings are, however, a little more pretentious, especially those which have lately been erected by

masons from India, with the help of one or two Frenchmen and Italians; stone is quarried near by, and some are still in process of erection.

Britain has now its representative staying there in the person of Capt. Harrington; the French are represented by M. Lagarde; the Russians and Italians have also their representatives. Indeed, the Russians have quite a large establishment, especially a medical one.

The foreign trade of the place is largely carried on by Indians, Greeks, French, and Armenians, who have bazaars there, but the main and more popular trade is almost entirely



PACK CAMELS.

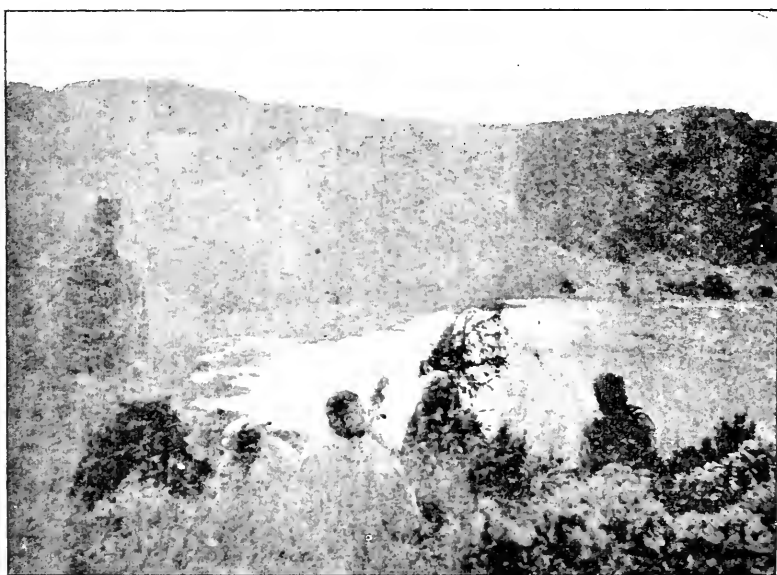
performed by means of the market—so also all over the country, for there are markets everywhere—which the travelling merchants, as well as the Galla agricultural producers, attend.

The market at Addis Abbaba is necessarily a larger one than others that we saw, and a huge motley crowd congregates there on the market days. The vendors squat on the ground with their wares spread out before them; their positions are taken with little or no order or plan, so that it is a matter of difficulty to pass from one part of the market to another, for one has to thread one's way carefully through the packed medley of buyers and sellers, ponies, mules, donkeys, cattle, sheep, and goats, as

well as avoid the wares which are scattered about all over the ground.

There are from four to five of the usual circular, conically thatch-roofed churches in different parts of the town, surmounted by the never-failing characteristic Abyssinian or Coptic cross.

We were delayed there, for Mr. Weld Blundell and Lord Lovat, in order to obtain permission to proceed further from the King, were obliged to travel to his camp some 180 miles away, for he had left Addis Abbaba and gone north to near Magdala with his army in order to receive the submission of his rebel subject Ras Mangasha.



LAKE ON SUMMIT OF THE HOLY MOUNT, ZOUGUALA.

I remained at Addis Abbaba in charge of the main camp, and to superintend the necessary preparations for the continuation of our journey. Part of the time, however, I utilised for the purpose of going forty miles south and visiting Mount Zouguala, the famous holy mountain of the Abyssinians. It is a lofty mass in the form of a truncated cone which rears itself some two thousand feet above the level of the surrounding country, and forms one of the series of perfect extinct volcanic craters already mentioned.

Villages are scattered upon its lower slopes, the upper portion is densely wooded, and upon its summit is an oval rocky-banked.

flat-bottomed valley, a mile to a mile and a half broad and about two hundred feet deep, which is partially filled up by a lake. The altitude, 10,000 feet or more above the sea, causes the climate, in the day even, to be here comparatively cold and bracing.

It is probably on account of the extraordinary, to the native mind, though natural conditions here that a certain amount of superstitious value is attached to it by them; for by drinking the waters and bathing in the lake miraculous cures are wrought, so that pilgrimages are made to it by the sick, maimed, and diseased from far and wide.

Some springs, trickling from the rocky walls, are also drunk by women, and fervently believed in as a sure cure for sterility. The whole mountain top and the miraculous waters are dedicated to the Virgin Mary.

It has also attracted to it a number of priests and hermits, who form a so-called monastery. These men live in isolated, separate huts embedded in the forest, a large number of which are hidden there; so also are churches; they are said to spend their lives in prayer and self-mortification. I saw some of them engaged in those rigorous religious exercises, which often take the form of severe floggings with hippopotamus-hide whips till much blood is drawn. They all had a wild half-maniacal appearance. At this place I came across a church, in the compound surrounding which, I was very much interested in finding a company of priests engaged in casting out devils and similar religious exercises; a priest was standing in front of the sick person; facing him, some twenty yards away, the patient stood with a dejected, downcast, and humble mien; the priest raised his arms high above his head and threw his hands towards him with other gesticulations, at the same time using declamatory and emphatic expressions. I fear I interrupted him, for he soon finished and the patient was moved away by his friends. How long this had lasted before my arrival I cannot say. There were many other sick persons I saw standing near, no doubt awaiting their turn to be operated upon.

I was admitted into this church, though my Mohammedan attendants were not, and was shown the usual motley array of gaudy chromo-lithographs which are attached all over the wall surrounding the inner square chamber, or holy of holies in this, as well as in all the churches I visited; these represented the Virgin, Christ and the Saints, each had also descriptive letterpress attached in Latin, or in all, or one of the four languages—English, French, German, and Italian, for they were of recent European origin, many of them having “Made in Germany” affixed upon them.

The Russians, having for some time had considerable influence in the country, the orthodoxy of any foreigner claiming

to be a Christian is very much questioned, as the idea has gained considerable hold, through them, that no people are Christians except the Russians and they; therefore I was taken round and shown these pictures, and had to pass a sort of examination upon them; needless to say, I came through with "flying colours," for had I been unable to make them out otherwise, the description upon each told me what they were. The priests, some ten or a dozen, were so delighted that, though they still somewhat doubted my orthodoxy, they took me to the door of the "holy of holies" and showed me one of their chief treasures, a double folding panel on which were depicted the Annunciation of Mary, and St. George and the Dragon. St. George is the patron saint of this church as well as of Abyssinia I was told, so I pointed out—all this of course through an interpreter—that he was also the patron saint of England. This interested them considerably, though they still seemed doubtful, so the happy thought struck me that I had a sovereign in my pocket; I quickly produced this; it was rapidly and excitedly compared with their picture; the resemblance was immediately perceived, when their delight, wonder, and excitement was unbounded. I was indeed a Christian, and one of no mean order, here was the proof, for I carried about with me a charm with the effigy of their patron saint, which was mine also, a talisman against all evil!

At Addis Abbaba, almost in the town, there are some hot springs which are very much used by the sick and diseased, especially those with rheumatism and skin eruptions. These bubble up through the mud and rock in a valley, and flow into a rivulet near by.

I took the temperature of them; that of the hottest I found to be 76·3 Cent., or 170·0° Fahr.

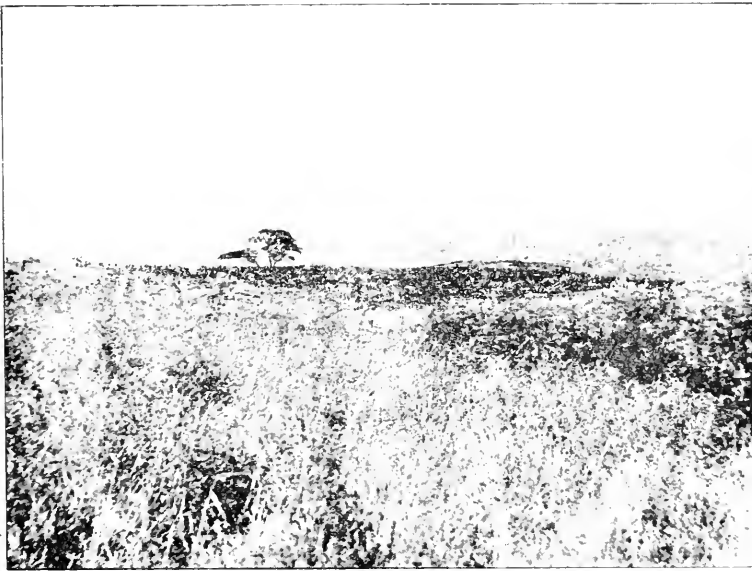
The people of both sexes strip themselves of all their clothing, and, without any regard for decency, sit in the small mud basins made by the water, choosing those in which the water is less hot, in full public view.

Bathing is carried on in the same manner in the lake at the summit of Mount Zouquala.

Permission having been granted by the King, the re-united party proceeded on its way on the 2nd of March, and travelled almost due west, through hilly and varied country for some distance along the base of the Metcha range of hills. We soon again crossed the Hawash river, which curves round in a great semicircle from here, which is not far from its source, flows south-eastwards to the south of Addis Abbaba and Mount Zouquala, and then runs north; further on we crossed the Guder and Gibbé rivers, at the same time passing through varied country, and arrived at Bilo in the Leka district. This is an important place, 4,768ft. above sea level, and very

populous, and here the choom or chief who administers the district resides.

The people of the place having heard that a Hakim Ingleesé (English doctor) was one of the party, a number of the sick and ailing of them regularly besieged and mobbed my tent in order to obtain treatment; they were in such crowds, and so eager to obtain medicine that they pressed upon and almost overwhelmed my tent, and in pure self-defence, as well as to obtain breathing space, for they would not listen to remonstrance or reason, I was compelled to get two of our Sudanese soldiers to lay about them with their hippopotamus-hide whips, or *koorbashes*, and so to



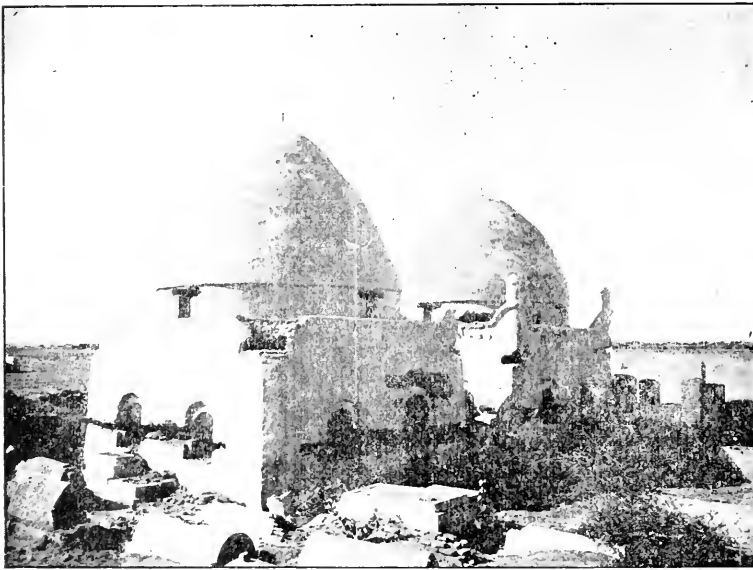
GIMBI MARKET.

clear a space in front of it; even that would scarcely keep them back. Priests were also among the number of those who came for treatment. Needless to say as many as possible were attended to. The examination of them, however, could be only cursory, while they (of both sexes) had to detail their symptoms, some of these being of a delicate nature, through an interpreter, before all the others within hearing and sight, for privacy was unobtainable. They, however, did this without any hesitation whatever.

Here also before we departed we had some difficulty with the choom, who would not allow us to pass, for the King's letter, although mentioning that we were allowed to shoot elephants,

did not mention that we might carry rifles, and here was the choom's difficulty; it apparently never struck him that one could not shoot without rifles, or else he wanted to try to get a substantial present out of us; this is the conclusion we came to. We, however, would not be coerced into giving him anything, so after bluffing him a bit we passed on in spite of him, for he did not dare to use force, and proceeded to Gatamma.

Thence we passed over hilly country, north to Lecampte in Sibü; then, after crossing the Didessa river and ascending the tremendously steep and rocky range of mountains on its western side, we passed on to Gimbi; thence we went in a N.N.W.

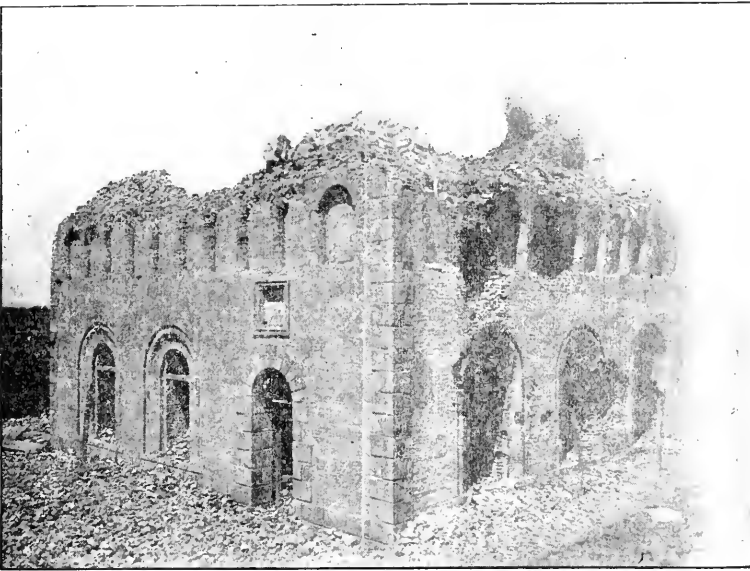


HOLY SHEIK'S TOMB, KHARTOUM.

direction through Najo to Mendi. All this portion of our route lay through the Galla country—beautiful, diversified, and fertile. The Gallas here have comparatively lately been subjugated by the Abyssinians; they are a fine-featured, well-formed race, who are kept in abject subjection to their conquerors by means of not allowing them to have firearms. The Abyssinians rob, ill-treat, and tax their produce without mercy, and they are evidently in a very unhappy state.

At Mendi we were kept prisoners for a time, for Dejadge Demis, to whom we were recommended and directed by the King, was away on a distant raid, and his deputy was either too

stupid to understand, or else dared not use his discretion in interpreting the King's letter, so he obliged us to halt until by our sending a letter post to the King definite instructions could be sent to him. In three weeks our messenger returned, and all was arranged. On account of recent wars in the country food was very scarce; the difficulty we experienced in getting supplies therefore also detained us, and we were obliged to send to obtain them from a distance. Sufficient having at last been collected, we then crossed the Dabus river and proceeded through the Berta or Shangalla country to Amdurahman's village, the Beni Shungul of the maps.



RUINS OF MAHDI'S TOMB, OMDURMAN.

The Berta or Shangalla people, as they are called by the Abyssinians, are quite a different race to those we had up till now been among; these are true Negroes, while the Somalis, Abyssinians, and Gallas have almost European features and frames. They are people who make use of the ugly, dangerous, throwing-knives or swords, the boomerang-like throwing-sticks, as well as the ugly barbed spear. They are also remarkable because of the amount of tattooing, in the form of gashes in the skin arranged in patterns, with which they cover their bodies, faces, and limbs. They live in toukuls, mostly raised upon platforms, and also cultivate the soil.

From Amdurahman's village we made our way still north to Fasokl, where we crossed the Blue Nile in a ferry-boat to Famaka, the most advanced south-eastern outpost of the Anglo-Egyptian army. Thence we still proceeded by caravan to Rosaires. We then travelled down the river in the Melik gunboat to Sennaar, where Col. Lewis, the hero of Dakla and other battles, received and entertained us. The water in the river being still low, the gunboat was not able to go further, so we were obliged to make use of the large, slow, clumsy, barge-like native boat, or nuggar; in two of these boats, one for the baggage and servants and one for ourselves, we were cooped up for ten days, obliged to recline (for there was no deck whatever) within an eight-foot square, low-roofed, rough booth, which kept the sun off us, at a temperature of 105° to 120° Fahr. in the shade, so we were heartily glad when at last we arrived at Khartoum and Omdurman on the 1st of June.

Here we were lodged in the Khalifa's palace, and hospitably entertained by Col. Maxwell and the officers of the garrison.

After a three days' stay, one of which we made use of for visiting the battlefield, we again took to the nuggars, and after shooting the Shabluka rapids arrived at the Atbara, where we found two of the piers of the new bridge had already been erected; thence by train and steamer we were soon in Cairo.

The scientific results will soon be published; some, indeed, are already completed, and will, no doubt, add considerably to what has been hitherto known of these unvisited and other rarely visited regions of Africa.

NORTH POLAR EXPEDITION.

Three men are aiming for the North Pole this summer. The Duke of Abruzzi, after a winter of exploration in Franz Josef Land, planned to advance from that group of islands. This route to the North Pole is considered the most difficult, as 500 miles each way, or 1,000 miles in all, have to be fought over ice and snow. The Italian prince is, however, of a splendid physique and an indomitable will, and he has with him the best equipped party that has ever started for the North Pole. If Peary's plans have been successfully carried out, Cape Joseph Henry is now in his rear, and he is sledging across the frozen sea ahead of Lockwood and Brainard's farthest north. This is Peary's third consecutive summer in the Arctic. Last year he passed in establishing a "road" lined with caches of supplies to Cape Joseph Henry, from which he was to make his dash this spring. The *Windward* sails early in July on the third of the series of annual reinforcements. She will be equipped for three years, so that Peary may keep her with him as long as necessary. Sverdrup in the *Fram* is an unknown factor. His first year he accomplished little, as his ship was frozen in 50 miles to the south of Peary. It has been stated that he has given up his original ambition of gaining the Pole, and is confining his work to a careful exploration of north-west Greenland. Robert E. Stein, with two companions, has passed the winter in Ellesmere Land, near Cape Sabine, where, it will be remembered, he was left by the Peary relief steamer last summer. Stein hoped to return this year on the Peary relief steamer, but, as the *Windward* will probably not return this fall, the chances are that his party will have to remain north another year. He may have already cast in his lot with Sverdrup, or later, when the *Windward* appears, he may join the Peary party.—*G. H. G.* in *National Geographic Magazine*, July, 1900.

EXAMINER'S REPORT ON THE PAPERS SENT IN DURING THE
YEAR IN REPLY TO QUESTIONS IN "GEOGRAPHY."

Leyland, January 4th, 1900.

To the Secretary of the Manchester Geographical Society,

SIR,—I have examined the papers submitted to me, and have the honour to report to you as follows:—

In Class C only one candidate competed. His work was distinctly good and perseveringly maintained through the entire year. If a prize can be given where there is no competition I have pleasure in recommending E. J. Robertshaw for the prize in this class.

In Class B eight competitors entered the lists, but only four struggled to the end. The resulting order is as follows:—

Howard Reed	Age 11	15 marks out of 135.
Dorothy Johnson	" 10	25 " "
Faith M. Oram	" 12	40 " "
Dorothy Millard	" 10	45 " "
Cecil Samter	" 10	45 " "
Daisy Mills	" 12	60 " "
Lillian Stott	" 11	88 " "
G. Robertshaw (Prize) ..	" 12	115 " "

I am glad to be able to speak very well of Robertshaw's work, which was fit to be ranked high in Class A. Not one of the candidates grasped the fact that there is only one cape, so called, on the whole coast of England, and one young lady was misled by the sound into reckoning Spithead and Birkenhead among the capes and promontories. However, to mark my disapproval of "catch questions" I only valued that one at five marks.

Class A produced six competitors, only one of whom persevered to the end; the result is—

Elinor Reed.....	Age 14	25 marks out of 120.
J. S. B. Reed.....	" 16	80 " "
Wm. Hargreaves	" 14	40 " "
Lois Marsden	" 16	60 " "
Ada Wakefield (Prize). ..	" —	80 " "
A. B. Hartley (Prize). ..	" 15	88 " "

CASATI PRIZE.

Two essays were sent in competition for this prize by J. S. B. Reed and Reginald C. Bellamy. Both showed evidence of having worked up the subject, but the younger candidate was so regardless of ordinary custom in quotation that he threw himself hopelessly out of the contest. The prize is awarded to Reed.

The quality of these essays, and of the answers in Class A, was well up to the average, but I think the competitors in a Geographical examination should occasionally illustrate their answers with maps and plans.—Yours obediently,

JAMES D. WILDE, Examiner.

The prizes were given as follow:—

George Robertshaw, aged 12, "Sport in the Alps," W. A. Baillie Grohman.

A. Beatrice Hartley, aged 15, Herbertson's Geography.

Ada Wakefield, aged —, Paton's "New Hebrides."

J. S. B. Reed, aged 16, "Great Shipwrecks."

E. J. Robertshaw, aged 10, "Livingstone's Travels."

Lillian Stott, aged 11, "The Challenger Sprye."

CASATI PRIZE.

J. S. B. Reed

CONSOLATION.

Howard Reed, aged 11, "Nansen."

Dorothy Johnson, aged 10, "Tennyson."

Faith M. Oram, aged 12, "Days of Bruce."

Dorothy Millard, aged 10, "Oliver Cromwell."

Cecil Samter, aged 10, "Geographical Discovery."

Daisy Mills, aged 12, "British Coinage."

Elinor Reed, aged 14, "Story of the Potter."

William Hargreaves, aged 14, "Eclipses."

Lois Marsden, aged 16, "British Race."

Mr. Grogan's Journey from the Cape to Khartum.—The letter from Mr. A. H. Sharp, printed in the December number of the *Geographical Journal*, gave some particulars respecting the first stages of the expedition undertaken by him and Mr. E. S. Grogan to the country north of Lake Tanganyika, where, among other geographical work, the course of the Rusizi and Lake Kivu were mapped. Mr. Sharp, it will be remembered, was obliged to return home by Uganda and the East coast, but his companion remained behind in the hope of continuing his journey down the Nile to Khartum. In this he has been successful, telegrams from Omdurman announcing his arrival at that place on February 8. From Lake Albert Edward, Mr. Grogan went down the Semliki, and by the west shore of the Albert Nyanza to the Nile, which he followed as far as Bor. Thence, to avoid the swamps, he made a detour through the Dinka country to the Bahr-el-Zeraf, which he struck 30 miles from its junction with the Bahr-el-Jebel. Having reached the base of Major Peake's expedition for the cutting of the *sudd* on the Bahr-el-Abiad, he continued his journey by the central channel of the river. Mr. Grogan is now, we believe, on his way to this country.—*The Geographical Journal*, March, 1900.

PROCEEDINGS OF THE SOCIETY.

JANUARY 1ST TO MARCH 31ST, 1900.

The 528th Meeting was held in the Cotton Waste Exchange, on Saturday, January 5th, 1900, at 5 p.m. In the chair, Mr. S. OPPENHEIM, J.P., Honorary Treasurer.

About 200 children of the members accepted the invitation of the "Victorians" to attend the annual party.

Mr. HARRY SOWERBUTTS demonstrated with the lantern. Several sets of geographical views were shown. Games of various kinds suitable to the children present were indulged in, and some beautiful dancing by the elder children present.

The usual light refreshments were served during the evening, and toys were distributed, the smallest children obtaining the largest dolls, etc.

Signor Captain Casati again sent a large Christmas cake for distribution.

Mrs. Doxey attended at 8 o'clock to distribute prizes (see report, page 31), and to cut the Casati cake.

After the distribution of the prizes, Mr. S. H. Brooks, a Trustee of the Society, exhibited a very fine collection of slides illustrating the Boer war, with scenes and portraits, and he also exhibited some very beautiful mechanical and some comic slides.

Mr. John Partington was the lantern demonstrator.

A number of the "Victorians" with ladies, Miss Oppenheim at their head, took part in the entertainment and in providing refreshments for the guests.

Mr. JOHN SNADDON moved, and Mr. J. HOWARD REED seconded, a very hearty vote of thanks, on behalf of the children, to the Society, the "Victorians," Mrs. Doxey, the ladies assisting, to Mr. S. Brooks, Mr. Harry Sowerbutts, and to the Chairman for their kindness and valuable assistance.

The children carried the vote with acclamation.

Mr. BROOKS responded for Mrs. Doxey, himself, and others, and made a very gratifying announcement in reference to next year's prizes and other matters.

Mr. S. OPPENHEIM also responded.

The meeting closed at about 9-30, and the children went away, having spent a happy evening, some of the younger children wanting to know if they could come again next week.

The 529th Meeting of the Society was held in the Library on Tuesday, January 9th, 1900, at 7-30 p.m. In the chair, Mr. T. DREYDEL.

The Minutes of the last three meetings were read and approved.

The election of the following members was announced:—

ORDINARY: Mr. Colin Ross, J.P., Councillor W. Stephens, J.P., Mr. W. B. Midgley, Mr. A. Galbraith, jun., Mr. Edward Behrens, Lieut-Col. C

E. A. Behrens, V.D., Mr. H. Graefinghoff, Mr. Martin Hirschberg, Dr. Graydon, Mr. H. H. Smith-Carrington, Mr. G. M. Richardson, Mr. A. W. Galloway, Mr. J. L. Welch, Mr. P. A. Paulsen (Consul for Denmark), and Mr. Thomas Barningham.

CORRESPONDING: Mr. C. H. Bellamy, F.R.G.S., Roubaix.

AFFILIATED: The Governors of Balshaw's Schools, Leyland.

The following presentations were announced:—By the Agent-General of Western Australia: Geological Map of Coolgardie (scale, ten chains to one inch). By the National Geographic Magazine: Map of Transvaal (large scale). By the Royal Geographical Society of Australia, Queensland branch: Map to illustrate the expedition originated and equipped by Sir Thomas Elder, G.C.M.G., in South Australia and Western Australia, 1891-2. By the Minister of the Colonies, France: Mission Hourst. Cours du Niger de Tombouctou à Boussa. Levé expédition, exécuté en 1896 par MM. Hourst, Lieut. de V^{eu}, Baudry, Enseigne de V^{eu}, et Bluzet, Lieut. d'Inf^{te} de Marine. Atlas de Cinquante Feuilles à l'Echelle de $\frac{1}{350000}$. 1899. Carte de la Mission Blondiaux, 1897-8. Levée et dressée par le Chef de Mission. Echelle de $\frac{1}{350000}$ (4 sheets).

By Mr. George Thomas, the following photographic albums: Guide Continental, December, 1899. Le Livre d'Or, No. 1, Paris, 1900 (an account of the 1900 Paris Exhibition). Munich: München. Seascale and district (photographic album). Souvenir lac des IV Cantons. Souvenir de la Suisse. Vues de Rouen. Album Warszawy. Three albums of Russian Peasants, English Lakes, Descriptive account of Dewsbury. An Atlas (1872) of the Manufactories in the Moscow Government, with plans and explanations, 2 vols. Voyage of the Sunbeam, by Mrs. Brassey: London, 1878. Finland, the land of the Thousand Lakes. Geographisch Statistische Tabellen; Länder der Erde, 1897. Photographs of Monserrat. Souvenir of the Highlands (Trossachs). Souvenir of Norrköping. Plan of Rome, 1890. Plan of Stanley's Emin Pasha Expedition (with the "Daily Graphic," July 5th. By the Clarendon Press: The Historical Atlas. Maps—Europe, 1863-97. Scotland Parliamentary Representation to 1832. Syria, 1096-1291.

FOR THE COMMERCIAL MUSEUM.—By Mr. Thomas: Woven basket made by the prisoners in the jail at Tangiers. By the Agent-General of Western Australia through the Jarradale Company, London: Sample of Jarradale wood. Two other samples of Jarradale wood. One sample of Jarradale wood (polished). One sample of Jarradale wood (polished). One sample of Jarradale wood (plain).

Correspondence was read from the following:—Messrs. Jones and Evans: The Outlook Tower, Edinburgh: Mr. H. Nuttall: Mr. C. A. Clarke: Rev. S. A. Steinthal, F.R.G.S.; and Mr. G. W. Simpole.

Dr. J. JONES addressed the Society on visits he had made to the River Amazon, under the title of "1,000 Miles up the Amazon," and illustrated his address with a large collection of slides made from his own photographs, and with maps, etc.

Questions were asked and replied to by Dr. Jones.

Mr. S. OPPENHEIM moved, Mr. C. H. SCOTT seconded, and Dr. GRAYDON supported, a most cordial and hearty vote of thanks to Dr. Jones for his admirable address.

Dr. JONES responded.

The 530th Meeting was held in the Library, on Tuesday, January 16th, 1900, at 7-30 p.m. In the chair, Mr. Alderman I. BOWES.

The Minutes of the previous meeting were read and approved.

Correspondence was read from the following:—Mr. W. R. Anthony; Dr. R. Kœttlitz; Mr. T. Loenen (Librarian to the Geographical Society of the Pacific); Mr. Joseph Jones; Rev. T. Wakefield, F.R.G.S.; Mr. A. J. Herbertson, F.R.G.S.; and Mr. E. W. Mellor, J.P., F.R.G.S.

Mr. PERCY H. LEIGH, of Worsley, addressed the Society on "A Voyage Round the World," and his address was illustrated with a fine set of slides, beautifully coloured.

A very hearty vote of thanks was tendered to Mr. Leigh, on the motion of Mr. HARRY NUTTALL, seconded by Mr. W. T. EVANS.

Mr. LEIGH responded, and invited the Society to visit his toy railway in March.

The 531st Meeting of the Society was held in the Conference Room of the John Rylands Library, on Saturday, January 20th, 1900, at 4-30 p.m. In the chair, the Rev. S. A. STEINTHAL, F.R.G.S.

A very large party of members attended at the Library, where they were received by the Librarians. After a description of the building and some account of the books, papers, and maps had been given by the Librarians, they conducted the members through the building, answering questions and exhibiting the various treasures of the Library.

Very hearty thanks were given to the Trustees for their permission to visit, and the Librarians for their kind services to the party.

The 532nd Meeting of the Society was held at the Moss Side Higher Grade Board School, Princess Road, Moss Side, on Saturday, January 27th, 1900, at 3 p.m. In the chair, Mr. J. HOWARD REED, one of the Honorary Secretaries.

This visit was the result of the report of some of the "Victorians" who had seen the school, and upon an application for permission to visit a very kind invitation was given by Mr. T. H. Bramwell, B.A., who met the members, and conducted them over the school. The Moss Side School Board has this year become affiliated to the Society, in order to secure for its evening school a series of lectures from the "Victorians," as one of the many means which in a broad-minded and altogether admirable educational spirit the Board adopts to introduce into their evening schools some of that enterprise which has characterised their policy in the day school, and made it a conspicuous illustration of what such a policy can render possible.

The school was opened by the Marquis of Lorne in September, 1895. The external appearance suggests substantial construction, rather than æsthetic beauty, and gives no suggestion of the conditions inside. The general building consists of three storeys, and in plan somewhat resembles a dumb-bell, the central portion constituting, in the mixed department, a large school hall, 70 feet by 50 feet in size, and having an unbroken span of ceiling. At each end is a range of class-rooms. On all sides are windows, and as the class-rooms are divided from the main hall and each other by glass partitions, the whole school is flooded with the cheerfulness of abundant daylight. Overhead is a flat roof, originally constructed for a boys' playground, but now in the process of being covered with class-rooms, in

order to provide more places for scholars. The mixed department was originally built to accommodate 800, but so great has been the demand for admission that not only has the Board for three years past been refusing all applications from children resident outside the township boundaries, but it has now had to make further provision, and the roof playground is

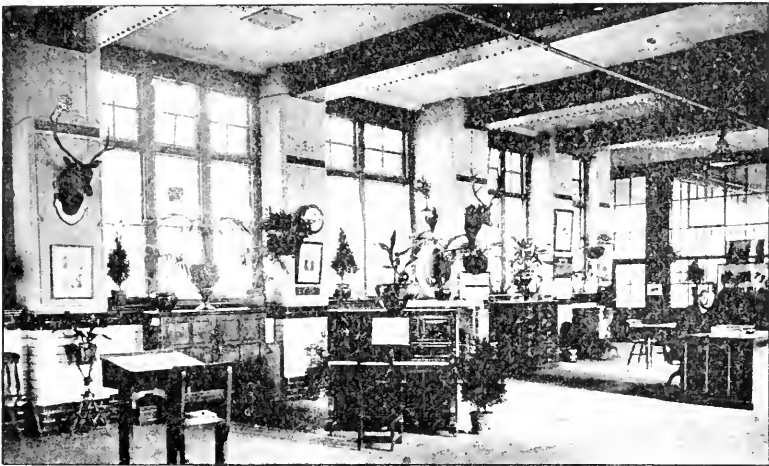


MR. BRANWELL AND STAFF OF THE MIXED DEPARTMENT, PRINCESS ROAD SCHOOL, MOSS SIDE.

being sacrificed to provide for 400 more. The accommodation, which will then be over 1,200, will be only just adequate for the children actually in the school.

Light, airiness, and cheerfulness are features which have been secured by wise building arrangements; the size of the school and its organisation

are also sufficient to attract interest, but the feature which is distinctive and which, so far as our knowledge of schools extends, renders it absolutely unique is the extent and nature of the decorations, which seem to extend to every corner of the large buildings. We look in vain for those friends of our youth—multiplication tables, list of nouns and prefixes, maps which have seen better days, *doh-me-soh* charts, the whole leavened only by a few stray pictures of dogs and cows nailed on the wall with tacks. Some of these lists might have use, but they had no pretensions to beauty, and to us they bore a relationship similar to the persuasive instruments hung round the rooms of the inquisitors described in our well-thumbed histories. Here we have nothing but attractiveness and beauty—a wealth of plants in hanging baskets and ornamental pots, pictures without even a moral to teach, and all in frames, stencilled designs on the walls, pressed specimens of flowers mounted and framed in series, specimen cases of various kinds,



INTERIOR OF LARGE ROOM, HIGHER GRADE SCHOOL, PRINCESS ROAD, MOSS SIDE.

and museum cupboards full, not of monstrosities, but of choice illustrations of natural history. We notice several stags' heads, one of which Mr. Bramwell indicates as of special size and excellence, which was presented to the school by the Lord President of the Council on Education. There are several cases of stuffed animals, and around the hall are hung flags of various nations, with the English ensign and the Union Jack, of course, in particular prominence. Other colour is added by stained windows, some belonging to the building and some painted by hand work. A frieze of maple panels bears the inscriptions on the two sides of the hall respectively:

"Who loves not knowledge? Who shall rail
Against her beauty?"

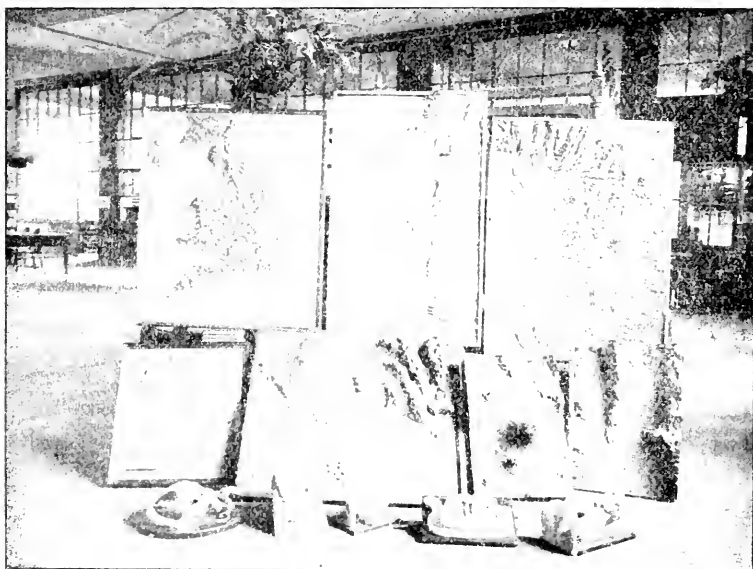
and

"Live pure, speak wise, right wrong, follow the King;
Else wherefore born?"

A system of electric bells runs to the various rooms, and the whole is rung automatically by the school clock at each change of lessons.

Even the staircases, of which there are four, have a continuous decoration, and half way up one is confronted by a stained window bearing the instruction: "Go up the stairs on the inside, and down on the outside, one step at a time," and the steps, more worn on the outside, bear evidence to the discipline which secures obedience to a rule for descending, which, though desirable, is opposed to the natural instinct of the boy genus in particular.

In the infants' school, which is in the capable hands of Miss Ada Greenwood, some of our members, both feminine and staid, were constrained to experiment with the rocking horses, swings, May-poles, and other similar



SOME HOME MADE MODELS, HIGHER GRADE SCHOOL, PRINCESS ROAD, MOSS SIDE.

apparatus, which represent the introduction into the life of these little ones of an element of happiness and amusement which many of us do not habitually associate with school.

A detailed description of all the accumulation of objects of beauty is quite beyond the purpose of this notice, but we must not omit the mention of a table of geographical models, all of which, save one, have the advantage of being made by the head master's own hands. We give a picture of some of them.

The school also boasts a library of its own, containing some four hundred books, and has three lantern screens for use in the day and evening schools.

The question which naturally came to our lips was: What is the source from which all this material, so excellent but so extraneous to the

usual conception of a school, has been procured? and we appealed to Mr. Bramwell. He explained that from the first he had had the full and sympathetic support of the School Board in the belief that the awakening in a child of a love and regard for beautiful things was an achievement more noble, even though less necessary perhaps, than giving it an acquaintance with rules of arithmetic and grammar. But they had thought it possible to do both. The Board had been precluded from contributing from its official funds more than a reasonable and ordinary amount to such a purpose, and the rest had been forthcoming from school concerts and other such sources. But the cost was quite out of proportion to the work produced. Mr. Bramwell modestly admitted himself to be the owner of a large proportion of the decorations, and to being the chief mechanic in the stencilling, model making, electric bell fitting, window painting, and much picture framing; mechanical work was the recreation of his leisure and holiday hours, and his interest in the school claimed the greater share of his productions. Wherever possible the children had also participated, and to them it served the double purpose of awakening interest and affording manual exercise. They had provided for the hire of a football field by a "jumble sale."

After two hours had rapidly passed in an inspection of the school, and the special rooms for the teaching of science, cookery, laundry work, and other special subjects,

The CHAIRMAN expressed the very great pleasure he had in visiting this bright and cheerful institution, and referred to the excellent work of the cookery classes.

Mr. SOWERBUTTS moved that the very hearty thanks of the meeting be given to the Moss Side School Board for their permission to inspect the school, and to the head master for his courteous reception and for his descriptions of the various departments. He said he was sure this school reflected great credit upon the Board for the ample provision made, but perhaps more for the way they had left the head master (who is an enthusiastic educationalist) to carry out so thoroughly and perfectly his ideas. Whilst the exterior of the school was somewhat forbidding, no sooner is the door passed than light and beauty abound. The staircases are full of fine photographs and pictures, whilst every room is full of objects of delight and interest. From the baby's room to the class-room and the central hall many things were gathered, illustrating in a fine way lessons of many kinds, and not least those of natural history and geography. All of them had to-day been highly delighted with what they had seen, and he begged to move their very hearty thanks to the Board and to Mr. Bramwell for their kind reception.

Mr. JACKSON seconded the motion, and said he felt what a pity he was now too old, or he might have had the good fortune to take in his lessons in this fine school. He felt it must be a delight to scholars here (and he was glad to know that they so much appreciated the collections that they were very careful not to damage them), to see these fine stags' heads, natural flowers placed between sheets of glass, the collections illustrating botany generally, geology, zoology, the arts, and he was glad to know that so many of the fine examples shown were placed there by Mr. Bramwell; whilst Mr. Bramwell's geographical models were very good. He had pleasure in seconding the resolution.

Several other gentlemen and ladies present also expressed the approval of the motion, and their thorough agreement with the remarks of the mover and seconder.

The resolution was carried, and

MR. BRAMWELL, in replying, expressed thanks for the kind references to the school, the School Board, and himself, and the pleasure which such interest in the school afforded him. He owed very great thanks to his Board for the encouragement and liberty they had allowed him in endeavouring to make the school a home of beauty to the children, rather than a mere place of business, and all connected with the school had full reward in the appreciation and regard which the children always showed for all the objects of interest and beauty with which they were surrounded, and much of which they must necessarily carry with them into life. As the visit of the members of the Society had grown out of a general invitation given to Mr. Sowerbutts at one of the "Victorian" lectures, it had not come under the Board's official cognisance, or he was sure some representative would have been there to welcome them. The only regret he had in reference to their visit was that they had come on a Saturday, when the school was "dead, and they had only been able to see its body."

At Mr. Bramwell's invitation some of the members interested in school work remained behind to examine specimens of the children's books and some of the technical apparatus used.

The 533rd Meeting of the Society was held in the Library on Tuesday, February 6th, 1900, at 7-30 p.m. In the chair, Monsignor GADD, V.G., Vice-president of the Society.

The Minutes of the two previous meetings were read and approved.

The election of the following members was announced:—

ORDINARY: Mr. Charles Brumm, Mr. Wm. Finnigan, jun., Mr. J. C. Somerville, Mr. A. Lester Taylor, Mr. Joseph Boden, Miss S. B. Squier, Mr. Thomas Parkinson, and Mr. C. H. Mitchell.

ASSOCIATE: Miss E. J. Pickering and Miss C. Baxandall.

The following presentations were announced:—By the Secretary of State for India in Council: List of Consultations, Proceedings, etc.; Bengal, 1704-1858. By Secretary of State for War: Catalogue of Maps, Accessions, 1st January to 30th June, 1899. By Mr. R. Flack, Liverpool: Sunset, June to November; Wayside Notes; Along the Sunset Route; California, South of Jehachapi; Abroad, Vol. vii., 1898-99. By the Governors of the John Rylands Library: Catalogue of the Library in three vols. By the Delegates of the Clarendon Press, Oxford: Historical Atlas of Modern Europe; Maps, Europe, 1863-1879; Scotland's Clans, etc.; Syria, The Crusades.

The following Portraits of Members have been received:—Surgeon-Major W. G. Black, Mr. W. T. Evans, Mr. C. H. Bellamy, F.R.G.S., and Mr. Leigh Howarth.

MR. JOHN R. NEWBY addressed the Society on his voyages to Iceland, giving particulars of the Shetland and Farøe Islands, and of the Icelanders. He illustrated his address with a choice collection of works of art and needlework manufacture from Shetland, the Farøes, and from Iceland, and with a fine collection of lantern views from his own and other photographs.

Dr. KELYNACK proposed, and the Rev. T. POPPLEWELL (Bolton)

seconded, a very hearty vote of thanks to Mr. Newby for his exceedingly interesting address.

Mr. NEWBY responded, and replied to numerous questions.

The 534th Meeting of the Society was held in the Memorial Hall on Monday, February 12th, 1900, at 7-30 p.m. In the chair, the Rev. S. A. STEINTHAL, F.R.G.S., Chairman of the Council.

Mr. H. J. MACKINDER, F.R.G.S., the Head Master of the Reading Grammar School, and the Principal of the New School of Geography at Oxford, addressed the Society on his recent ascent of Mount Kenya (Kenia), East Africa. He touched upon the discovery of Equatorial Snow Mountains in East Africa; the Uganda railway; the Athi Plains and their herds of game; the Elders of Kikuya; Meranga, a country of rain and teeming cultivation; troubles with Wangombe; the Elephant Forest of Kikuya; the steppes of Laikipia; path-cutting in the Forest of Mount Kenya; Camp 20; high-level bush fires; the murder of two of our men; Starvation Camp; first attempt on the Peak; solitude in the Steppes; second attempt on the Peak; third and successful attempt; the high-level circuit of the mountain; the journey home; the first crossing of the Settima Range; and results of the expedition; and illustrated his address with slides made from photographs taken on the journey. The address was listened to with great attention, and represented a piece of clean and complete geographical work which may be taken as a model for the future.

Mr. HARRY NUTTALL moved a vote of thanks to Mr. Mackinder for his admirable address, to Mr. E. W. Mellor, J.P., for his kindness in manipulating the lantern by the electric light, and to the Trustees and Secretary of the hall for their having the electric installation made for lantern use.

Although the night was perhaps the worst we had during the season, with cold and heavy snow, a large number of members had ventured out to hear Mr. Mackinder, and amongst those present was the veteran East African Missionary, the Rev. Thomas Wakefield, F.R.G.S., of Southport, who seconded the resolution very warmly.

There was quite a pleasant interchange between Mr. Mackinder and Mr. Wakefield when Mr. Mackinder found that Mr. Wakefield was the authority on native reports of the roads, etc., in the map of East Africa, constructed by Mr. Ravenstein.

A number of questions having been asked, Mr. Mackinder replied to them, and responded to the vote.

After the meeting Mr. Harry Nuttall invited a few members to sup with Mr. Mackinder at the Queen's Hotel. A very pleasant hour speedily passed, and in response to the toast of his health, Mr. Mackinder gave some information in reference to the New School of Geography at Oxford.

A copy of the circular just issued will no doubt interest the members of the Society, and is appended hereto:—

UNIVERSITY OF OXFORD.

SCHOOL OF GEOGRAPHY.

Committee.

The Vice-Chancellor (*ex officio*); Sir Clements R. Markham, K.C.B., F.R.S., President of the Royal Geographical Society; the Hon. George C.

Brodrick, D.C.L., Warden of Merton College; Major-General Sir Charles W. Wilson, R.E., K.C.B., F.R.S. (nominated by the Council of the Royal Geographical Society); Henry F. Pelham, M.A., President of Trinity College, Camden Professor of Ancient History; Frederick York Powell, M.A., Fellow of Oriel College, Regius Professor of Modern History; Henry A. Miers, M.A., F.R.S., Fellow of Magdalen College, Waynflete Professor of Mineralogy; John L. Myres, M.A., Student of Christ Church (nominated by the Delegates of the Common University Fund).

Staff.

Reader in Geography: H. J. Mackinder, M.A., Student of Christ Church. Assistant to the Reader: Andrew J. Herbertson, Ph.D. Lecturer in Physical Geography: H. N. Dickson, B.Sc., New College. Lecturer on Ancient Geography for 1899-1900: G. B. Grundy, M.A., Brasenose College.

The Oxford School of Geography has been established by the University of Oxford in co-operation with the Royal Geographical Society. By permission of the Vice-Chancellor it at present occupies the upper floor of the Old Ashmolean Building in Broad Street, where a lecture-room and a laboratory have been fitted with the necessary appliances.

Admission is not confined to members of the University of Oxford, but all applicants must give satisfactory evidence of sufficient general education to profit by the teaching. Both men and women are admissible.

Course of Study.

The full course of instruction commences in October and extends over one academic year. It is assumed that those entering upon it will have a general knowledge of descriptive geography. Instructions will be given in the following subjects:—

The principles and chief facts of geomorphology. Rivers and river basins. The coastal belt. Mountains. Areas of elevation and depression.

Surveying, as practised by explorers. The use of the plane table, the prismatic compass and the theodolite.

The geographical co-ordinates. Map projections on the plane, the cylinder and the cone, and their commoner modifications.

The determination of position by astronomical methods. Simple observations for latitude, longitude, and true bearing. The reduction of such observations.

The reduction and generalisation of maps. Plotting of observations. Methods of depicting land relief. Compilation of statistical maps.

The distribution of solar energy on the rotating earth and the resulting circulations of air and water. The modifying effects of the distribution of land and water.

Meteorological and hypsometrical observations.

The climatic provinces of the earth. Compilation and use of charts of weather and climate.

The physical conditions of the Oceanic abyss and the methods of observing and representing them.

The chief generalisations regarding the distribution of animals and plants according to species and to associations.

The chief facts of anthropogeography. The geographical distribution of men according to number and to race. The influence of physical features in determining the position of settlements and roads.

Outlines of the historical geography of Europe and the Mediterranean lands, considered in relation to the physical features, more especially from strategic and economic points of view.

The history of geographical ideas. Outlines of the history of Discovery. The distribution of place-names in the Old Continent according to origin and meaning.

The instruction in the above subjects will be both theoretical and practical.

Towards the end of the course a more advanced theoretical study will be made of a selected Continent, while a district near Oxford will be practically surveyed with a view to its complete geographical description by each student.

Lectures for Undergraduate Members of the University of Oxford.

From time to time courses of lectures are given, intended for students preparing for the Honour Schools of the University. Notice of such courses is given in the *University Gazette*, and in the schedules of the Boards of Faculties.

Diploma.

The Committee have decided to apply to the University for a statute authorising a diploma in geography. This diploma will be awarded after examination, theoretical and practical, to such students as shall have followed the complete course of study for one academic year, and shall have passed all the examinations required for the degree of B.A. in the University of Oxford, or, if not members of the University, shall have given evidence of good general education.

Fees.

For members of the University of Oxford: For lectures, no fee; for the reader's class, £2 a term; for the assistant's classes, £3 a term.

For persons who are not members of the University of Oxford: For each course of lectures, 10s. a term; for the reader's class, £2 a term; for the assistant's classes, £3 a term. Or a composition fee of £6 a term, admitting to all lectures and classes.

Scholarship.

A Scholarship of the value of £60, tenable for one year, will be awarded annually, after examination. The Scholarship will be open to members of the University of Oxford of not more than twenty-seven terms' standing from their matriculation, who shall have taken honours in the second public examination. The examination will take place at the end of the month of June, and the scholar will be expected to attend the full course of instruction during the following academic year with a view to taking the diploma in geography.

As the school was not in complete working order during the Michaelmas term, 1899, arrangements will be made for students to begin the full course of instruction in January, 1900, and an examination for the diploma may be held in December of the same year.

All communications with reference to the school should be addressed to Mr. H. J. Mackinder, School of Geography, Old Ashmolean Building, Broad Street, Oxford.

The 535th Meeting was held in the Memorial Hall, on Wednesday, February 21st, 1900, at 7-30 p.m. In the chair, the Rev. S. A. STEINTHAL, F.R.G.S., Chairman of the Council.

Mr. E. W. MELLOR, J.P., addressed the Society on his visit to Germany last year, under the title of "The Harz Mountains, Brunswick, and Hildesheim," illustrating his address with very fine slides made from the photographs taken by him on his journey.

Mr. J. HOWARD REED moved a very hearty vote of thanks to Mr. Mellor for his address that evening, and for the very many kindnesses he had shown in past years to the Society, and to the demonstrator. Unfortunately the electric arrangements broke down, which prevented some of the most interesting views from being shown.

The SECRETARY seconded the resolution, and spoke of the many and great services Mr. Mellor had given the Society.

Mr. MELLOR responded.

Correspondence was read from the following:—Mr. C. A. Clarke, Miss E. Bellchoud, Mr. D. G. Butler, Mr. James C. Somerville, Mr. C. H. Bellamy, F.R.G.S., Surgeon-Major Black, Mr. W. Cadman, Lieut.-Colonel E. Rogers, Messrs. E. J. Eckersley and Company, Mr. A. J. Herbertson, F.R.G.S., Mr. A. W. Ward, Mr. E. W. Mellor, J.P., Mr. H. Stadelbauer, Mr. G. Dentith, Mr. J. C. Blake, Mr. G. Hegenbottom, Mr. H. Jones, Rev. S. A. Steintal, F.R.G.S., Secretary of the American Ambassador, Alderman I. Bowes, Mr. Percy H. Leigh, Mr. W. R. Anthony, Mr. Joel Wainwright, J.P., Mr. Harry Sowler, The Colonial Office, Mr. John R. Newby, Mr. S. Oppenheim, J.P., Mr. J. D. Wilde, M.A., Rev. Thomas Wakefield, Mr. S. H. Brooks, F.I.Inst., Mr. Mackinder, F.R.G.S., Mr. Sydney L. Keymer, F.R.G.S., and Mr. T. A. Marr.

The 536th Meeting was held in the Library, on Tuesday, February 27th, 1900, at 7-30 p.m. In the chair, Mr. JOHN THOMPSON.

Mr. GEORGE HIGENBOTHAM addressed the members on an excursion made by himself and a few friends through Donegal last summer, and illustrated his address with a number of lantern slides made from photographs taken by him in the journey.

Very hearty thanks were given to Mr. Higenbotham, on the motion of Mr. JOHN LORD, which was seconded, and carried.

Mr. HIGENBOTHAM responded.

The 537th Meeting was held at the Grammar School, on Wednesday, February 28th, 1900, at 2 p.m.

The High Master (Mr. J. E. King) had given Mr. E. W. Mellor, J.P., a cordial invitation to address the boys on the Harz Mountains, and to their great delight Mr. MELLOR gave them on this occasion an address on that subject.

The HIGH MASTER expressed the great pleasure they had had conferred upon them by Mr. Mellor's address.

The 538th Meeting of the Society was held at the Coal Exchange on Friday, March 9th, 1900, at 7-30 p.m. In the chair, Mr. FRITZ ZIMMERN, a Vice-President and Senior Honorary Secretary of the Society.

The Minutes of previous meetings (Feb. 12, 21st, and 27th) were read and approved.

Correspondence was read from the following:—Mr. R. Hope Brown, Mr. G. T. Bowes, Mr. J. Ward, M. A. Tucker Wardrop, High Commissioner for Canada, Mr. C. A. Clarke, Mr. C. H. Wordingham (Electric Light Station), Dr. Joseph Jones, Dr. R. Koettlitz, J. D. Wilde, M.A., Mr. R. Hope Brown, Mr. Edward W. Cowan, Messrs. Tillotson and Son, Ltd., Mr. J. Howard Reed, Dr. C. Peter's Secretary, and M. C. T. L. Garner,

Dr. REGINALD KOETTLITZ, of Dover, addressed the Society on his journey with the Weld-Blundell Expedition from Berbera through Harar, the Somali country, the Abyssinian territory, the Shangalla country, and down the Nile to Cairo. The address was illustrated with maps and slides made from photographs taken by Dr. Koettlitz during the journey, and was of a most interesting character.

Very hearty thanks, on the motion of the Chairman, were given to Dr. Koettlitz, to which he responded.

The 539th Meeting of the Society was held at Brentwood, Worsley, on Saturday, March 10th, 1900, at 3 p.m. In the chair, Alderman I. Bowes.

Mr. PERCY H. LEIGH having invited the Society to inspect the model railway, described somewhat erroneously in "*Harmsworth's Magazine*," about 130 members responded, and they were very kindly received by Mr. and Mrs. Leigh at Brentwood.

Mr. LEIGH and his two sons worked the model for a considerable time, and Mr. Leigh explained the purposes for which the model was made, and replied to very numerous questions, correcting statements in the "*Magazine*," and telling numerous stories of singular applications made to him from various parts of the country.

The following account of the visit is from the *Daily Dispatch*:—

A TOY RAILWAY.

DESCRIBED AS A MANCHESTER SUBURBAN WONDER.

Members of the Manchester Geographical Society journeyed to Worsley on Saturday, to inspect the toy railway system of Mr. Percy H. Leigh, laid in that gentleman's house at Brentwood. They had travelled down by the London and North-Western Railway, and found awaiting inspection an exact reproduction in miniature of the rolling stock and permanent way they had just left.

So far as the owner of this Lilliputian line is aware, this is the only one of its kind either in this country or abroad. Perfect, even to the smallest detail, the line may without exaggeration be said to reach the acme of mechanical genius in such things. It is a rich man's hobby, and there is only one word by which it can be described. That word is "wonderful."

Sterne translated the hackneyed quotation, "*De gustibus, etc.*," into "there is no disputing about the hobby-horses." Mr. Percy H. Leigh's hobby-horse takes a rather peculiar, and certainly an expensive, form. A

good many people have probably wondered at it, but those who have had the pleasure of seeing it in working order have confessed to feeling an amount of interest they never anticipated. Men are but children of a larger growth, we know, and the way some of the grave and reverend members of the Manchester Geographical Society renewed their youth on Saturday, as with faces lit up with an interest that is supposed to belong to boyhood alone, they watched a little locomotive running round a large oblong apartment, was a sight as agreeable as it was unusual.

THE RAILWAY DESCRIBED.

For the benefit of those who are not likely to enjoy the advantages of inspection, a brief description of this little railway system may be interesting. It is located in a lofty room ninety feet in length and thirty in width, built as a kind of annexe to the house, and flanked on one side by the conservatory. It is mounted on trestles three feet high. The permanent way is 276 feet round, and the total length of the rails, fastened down to pitch-pine sleepers, is about 1,200 feet. Between these sleepers are limestone chips, with which the line is ballasted. The gauge of the railway is six inches, and a double line of rails runs round the apartment, in addition to which there is a goods station and siding.

THE STATIONS.

There are two passenger stations, named Oakgreen and Beechvale respectively. The former is the principal one. In front of the building, which also includes offices for the management, is a platform, 24 feet long, provided with seats for passengers and various offices and conveniences. A glass roof affords a protection against untoward weather (which is never experienced), whilst the white gates are of the usual palisade type. Minor details in the shape of a passenger footbridge and level crossings, against using which latter a notice board warns passengers, have also been thought of. The stations, and, indeed, the signal posts, are lighted at night by electricity supplied from storage batteries placed under the track.

SIGNALS AND POINTS, ETC.

The equipment of the railway is complete even to the smallest detail. The instructions to the contractors, Messrs. Lucas and Davies, of Farringdon Road, London, was to work to scale, and that has been done as far as possible. In the matter of semaphores, signal-boxes, points worked by the usual rod connections and levers, etc., the more one looks into minutiae of this sort the greater is the wonder. Nor have such things as turn-tables and dead-stop buffers been forgotten.

The line has been constructed with the idea of reproducing as faithfully as art and skill can do the things one usually sees on a journey. Thus we have a tunnel 18ft. long, a deep railway cutting surmounted by a closely-trimmed hedge, a road bridge, and so on.

LOCOMOTIVE AND ROLLING STOCK.

Now as to rolling stock. First of all the locomotive *Empress* is a reduced duplicate of a North-Western express. With the tender it measures in length five feet. The steam is generated by a coke fire, and the boiler is fed by a little pumping arrangement. The speed the engine is run at is about six miles an hour, and it can travel the whole length of the line

six times before exhausting steam. This little locomotive is the work of Mr. Davies, and has cost its owner something like £300.

The rolling stock consists of a passenger train made up of three carriages and a guard's van, and a goods train composed of ten trucks and vans and a guard's brake-van fitted with a screw-down brake.

It was the passenger train which Mr. Leigh on Saturday first started. The exterior of the carriages—two corridors and a composite first and third-class carriage—are painted in the familiar chocolate and white of the North-Western, whilst the interiors are complete in upholstering and the provision of hat-racks, mirrors, carpets, etc.

Steam having been got up with the forced draught, and the whistle blown, the train, after a few stertorous puffs, went off bravely, leaving behind a thin trail of white smoke. It dashed through tunnel and cutting; it raced along the straight lengths; it took the various points with a precision worthy of its greater prototype. Finally it drew up for more fuel, and then, after a few minutes' pause, whistled imperiously to the signalman to lower the semaphore, and went off again to the delight of the spectators.

Subsequently the locomotive was attached to a long goods train laden with limestone chips, cattle, and small logs of wood, and traversed the system as before.

CURIOUS REQUESTS.

In acknowledging the vote of thanks, Mr. LEIGH mentioned some of the curious requests that had been made by letter since the line was opened. One man wrote offering to take charge of the railway at a salary of two guineas a week; another from Bristol was anxious to own a similar line, and desired Mr. Leigh's help to obtain one, if not, a bicycle; whilst a third made the dual offer of being either financed in working a railway patent or of selling a few dozen bottles of wine, which he was willing to dispose of cheaply.

Dr. KARFOOT, of Leigh, moved, and Mr. D. R. CALVERT seconded, a very hearty vote of thanks to Mrs. Leigh and Mr. Leigh, and to their two sons, for the very interesting exhibition of the model and their kind reception. Mr. LEIGH responded.

The 540th Meeting of the Society was held in the Library on Tuesday, March 13th, 1900, at 7-30 p.m. In the chair, Mr. HARRY NUTTALL, Vice-Chairman.

The Minutes of previous meetings on March 9th and 10th were read and approved.

The election of the following members was announced:—

ORDINARY: Mr. F. G. Abé, Concessor J. H. H. Smith, Councillor D. Healey, Mr. A. Marshall Higham, Mr. James Barton, Mr. Edward Mercer, Mr. John Houston, Mr. Alfred Midgley, Mr. Jesse Nield, and Mr. Charles Stevenson.

The following presentations were announced:—The Co-operative Wholesale Society's "Annual," with a most interesting illustrated article on Sugar (Messrs. Pingstone and Warren). Pamphlet from Mr. Perowne, describing Tours arranged for to Oberammergau, Paris Exhibition, the Adriatic, Rome, etc. United States National Museum Report, with a large number of illustrations. Report of the Smithsonian Museum, with many illustrations.

Several Reports of Geological Survey of United States, with numerous maps, plans, and views.

Correspondence was read from the following:—Messrs. F. Firth and Co., Ltd., Mr. P. Maclean, Mr. W. H. Taylor, Mr. James Lancaster, Lieut-Col. E. Rogers, Dr. R. Koettlitz, Mr. G. A. King, Miss A. J. Deas, Mr. J. Snaddon, Major R. F. Ballantine, Mr. Latham, The Colonial Office, Mr. George Thomas, and Mr. C. H. Bellamy, F.R.G.S.; and a most interesting communication was read from Dr. Carl Peters on "Ophir."

MACOMBE'S COUNTRY (SOUTH OF THE ZAMBESI), ITS ANCIENT GOLDFIELDS AND INDUSTRIAL RESOURCES.

BY DR. CARL PETERS.

In the year 1895, I visited a friend at an old castle in a little place on the Weser River, near Bremen, and looking through the library of that place discovered an old historical atlas, in which I found, among other interesting things, a map of Central and South Africa, which was particularly accurate concerning the Congo River, and the Lower and Middle Zambesi, and especially contained a careful sketch of the old Portuguese gold mines in these districts. This map is known in England. I published it in 1895. With the map, which I think was a work of the celebrated French geographer De L'Isle, and was published in the year 1705, was connected a description of the Zambesi district, especially of the Portuguese gold markets there. In this description I read the following passage, which seemed to me extremely remarkable, viz.:—

"Fifty lieues (one lieue is about two and one-third miles) from Tete, ten lieues from Bocuto, and half a day's journey from the River Mansoro, is the fort of Massapa, which used to be the principal gold market. It is to-day still the residence of a Portuguese captain, whom they call the Captain of the Gates, because from there onward in the country one finds the gold mines. The Dominicans have there a Church of Notre Dame du Rosaire."

It is, therefore, a place from which one may expect good and reliable information.

"Near this place is the great mountain of Fura, very rich in gold, and there are people who say that the name 'Fura' is a corruption of the name Ophir. One sees to-day still in this mountain (*dans cette montagne*) walls of cyclopean stones (*pierres de taille*) of the height of a man fixed together with an admirable art, without mortar and without being worked with a pick. It was apparently within these walls that the Jews of the navy of Solomon stayed. Since that time, the Moors have been masters of this ('Gold') commerce for several centuries. In this mountain the river of Dambarari goes to the north. These two markets were destroyed by the General Gamira, a Caffre, who rose in the month of November, 1693, with this difference that the inhabitants of Longoe, Portuguese as well as Canarins, had time to save themselves and escaped, but those of Dambarari, who wished to show themselves more courageous, all perished while defending themselves. So was it that all the gold-markets which the Portuguese had established in the Mocrange, during such a long space of years, were destroyed simultaneously, to avenge the injuries which they had inflicted on the Emperor of Monomotapa, who had always received them as their

children; or as the Portuguese explain it themselves, because their wives showed a little too much friendship to the strangers."

In the same year, 1895, I read in Bent's book on "The Ruined Cities of Mashonaland" (p. 295) the following:—"Couto, the Portuguese writer, speaks of the gold-mines here (on the Mazoe, as Bent takes it) in his quaint legendary style:—The richest mines of all are those of Massapa, from which the Queen of Sheba took the greater part of the gold, which she went to offer to the Temple of Solomon, and it is Ophir, for the Kaffirs call it Fur, and the Moors Afur."

Since 1895, I have been following up this discovery and studying the question of this mysterious Fura district, and the whole Ophir literature in general. I published the first result of my researches in a book called "King Solomon's Golden Ophir," in which I set forth, that our modern name for Africa is nothing but the Latin adjective form of the ancient Semitic word "Ophir" or "Afer," as it was called in South Arabia.

At the same time I have located "Fura" or "Mount Fura," as it is generally known, on the principles of geographical criticism. According to the reports I had before me, Fura was to be looked for about half-way between Tete and Sena, near the southern bank of the Zambezi River, in the East of Lupata, opposite the Rufumbo Lake, in a district called in the old reports "Dambarari," which I soon identified with the "Tambara" of our days. In this district I found on the most modern maps a place called "Injakafura." This I had all reason to identify with the Fura of the old reports. Inja is the prefix for "place" in general, "ka" means in the native language "big" or "great," so Inja-ka-Fura is "Place of the Great Fura," and I may as well mention here that Fura means in the language of Macombe's people, Makalanga, "Mine" or "Hole," and, therefore, has the same meaning, according to our most recent researches, as the ancient Semitic word "Ophir," or "Afer." Injakafura means "place of the great mine." In all our reports Fura was mentioned as the richest gold district known to the Portuguese. It, therefore, seemed to me, from a scientific as well as from a material point of view, advisable to go and explore this district on the spot. Now, Injakafura is a part of the country of the Chief Macombe, and in this fact you have in brief the basis for my expedition through Macombe's country.

That the gold mines of Fura, the knowledge of which had been lost since the end of the 17th century, had never been re-discovered till last year was owing to the fact that the Makalanga tribe, under their chief Macombe, had always been hostile to the Europeans, and did not allow any white men to enter their country.

War has been raging between them and the Portuguese for centuries. If you read Theal's book, "The Portuguese in South Africa," you will find the history of the relations between the Portuguese and the Makalanga tribe for centuries back. It was a continual change from peaceful understanding into mutiny and war, which ended in 1693, with the expulsion of the Portuguese invaders for good.

In April, 1899, I led my expedition about 200 miles up the Zambesi River to the eastern entrance of the Lupata Gorge. I had with me, among others, Mr. Leonard Puzey, from Bulawayo, who had had a trading station near Lupata Gorge two years previously, and knew the Makalanga language and the people—and Mr. Gramann, a mining engineer, of German educa-

tion, who had worked for years on the Rand and in other gold districts of South Africa; and three other gentlemen besides.

The station, which formerly belonged to Mr. Puzey, is Mitonda, and from here I decided to lead my caravan directly to the Injakafura of the modern maps. I will not in this place describe in detail the history of our explorations in the Fura district. It may suffice to mention that we found the "Massapa," which is always mentioned in connection with the Fura mountains as lying east of them, on the second day we were on the spot.

Massapa is now generally known by the natives as "Injasapa," but also under the name of Massaba. This, I take it, is the corruption of the original name, "Massaba," just as the Sabi river in its upper part is called "Rusapi." We have in this name, therefore, a similar indication of a Sabæan conquest, as in the word Sabi in the south.

In the west of this place Massapa, a picturesque slate *massive* is arising, which is the eastern escarpment of the Fura district. Through this *massive* the Muira river bends its way in a northern direction. Like sentinels two bold table mountains lying on the right and left hand side of the river bed stand guard.

For years I had certain fantastical ideas about the appearance of Fura. This time for once the reality surpassed all fancies. A more picturesque and at the same time more mysterious place even the fancy of a Rider Haggard could not have depicted. Such is the entrance into the ancient fabulous Eldorado. Like two rock castles the black masses of slate stand on the left and right hand sides of the Muira river, overgrown on the flat tops by plenty of green. Below, the water of the river is rushing, in which the dark blue sky of the tropical world reflects itself. Into the river valley on both sides the dark rock walls fall down at the eastern side like hill waves, then further west steep and wide, and above this charming landscape the sinister silence of death.

This valley is about five miles long from south to north. There must have been a time when its southern entrance was closed and formed one *massive* through which the Muira river has broken its way. We found distinct traces of this at the southern entrance of the river into the mountain. South of this gorge the right-hand escarpment turns in a wide bending to the east, while that on the left hand turns to the west: thus they make a wide valley formed by a steep escarpment. Towards south-west the right-hand margin nears the southern continuation of the east. On the left-hand side it elevates itself in the Msusi Mountain once more into a steep and mighty slate rock. It, so to say, locks the valley in the south. Below this Msusi Mountain the great Kraal of Injakafura is situated, where the Induna of Macombe, Kamboroto, Governor of the whole district of Injakafura, resides. This district runs about eight miles towards west and south. The greater part of it has formerly been a lake, and is now alluvial ground, in which we soon discovered alluvial gold. Above the Injakafura Kraal, opposite Mount Msusi, in the east of this alluvial plain, a hill rises, on which we discover ancient ruins. These ruins are, without doubt, the remains of old fortifications, which must have commanded the plain towards the west.

Permit me to give you a short description of these ruins. It seems that formerly there was an artificial ditch at the bottom of the hill, into which the Muira was led, as the river is deeper here than anywhere else, and runs directly round the bottom of the hill. It is possible that behind

this ditch round the bottom of the hill was formerly a cyclopean wall, which is marked to-day by vast *débris*. Round the margin of the top we found the remnants of an old wall, the stones of which had apparently been worked with a pick, as they showed certain triangular forms, with the edge turned outside. On the centre of the hill we found a mighty horizontal ledge, which we first took to be the entrance of a cave. Later researches, however, proved that this was a mistake. Round this ledge a wall of artificial form had been built, but was now fallen to pieces down to the ground. Near this wall we found a great number of curiously formed stones, which I am inclined to take to be Betylæ. Betylæ formed the object of religious worship in the oldest Semitic cults. Among these Betylæ I found a regular phallus. The worship of the phallus was connected with the original Semitic sun worship. That these stones were worked by men, and not the play of nature, is proved by the fact that they are formed by sandstone, while the rock and the whole formation of the hill is crystalline slate.

In its middle the hill is surrounded by a big cyclopean wall about 30 feet below the top. This wall follows in a circle the outlines of the hill, some places standing up to 15 feet and higher, other places half broken down, and at other places broken down altogether. Here the stone stood bare, there it was overgrown by dense green. We therefore have in this ruin decidedly the general Semitic type. The wall in the middle of the hill is particularly characteristic. I am certain that careful excavations, which last year I had no time to carry out, but shall do this year, will bring to light a great deal of remarkable evidence.

The place for this building was excellently chosen. As a fortress it had command of the plain in front as well as the entrance to the Muira Gorge. Opposite in the west a mountain range rises which is of dioritic formation, and is called by the natives "Injakalongoe." Through these mountains, about four miles west of Injakafura, a small tributary is winding, in which the natives still to-day wash gold after the rainy seasons. In former times when the whole plain was a lake it must have run into this lake at its north-western corner. The name of the river is "Injabanda" and on its banks we found mighty quartz reefs with ancient workings, in which, by panning, we soon tested gold. The old workings not only were surface workings, but also shafts, a road cut into the rock and an old quarry was there. I think that these gold mines correspond with the so-called Abyssinian mine of our reports. The more I think of this the more I am convinced of it, as the quarry is particularly mentioned in the Portuguese reports. It was worked by the Portuguese themselves shortly before they were driven out of Macombe's country altogether. The gold belt runs from this reef in a northerly direction towards the Zambesi river. The formation is always the same, slate is bordered by diorite in the west and in this diorite the quartz reefs are embedded between bars of slate again. The Injakalongoe range, which is called in its northern continuation "Injandara," and runs parallel to the Fura escarpment, represents the dioritic counterpart of the phyllitic slate of Fura. Geologists will agree with me when I say that these rocks represent a distinct gold formation. Several of the gold reefs also in the north near the Zambesi river have formerly been worked.

If you allow me to put my discoveries about the Fura mines together, the picture is as follows:—The Injabanda river, in former times, ended in a

lake, the centre of which was about where the great Kraal "Injakafura" is situated. Through this Injabanda river for millions of years alluvial gold has been carried into this lake, and when the Muira broke its way through the eastern escarpment, a great alluvial plain was laid dry, in which the conquistadores thousands of years ago must have worked alluvial gold. They built a fortification on the eastern borders of this alluvial plain. Whether it will pay to work this plain for alluvial gold with modern machinery I intend to examine next summer. I should say if we go deeper with dredging machinery we may find the bed rock rich in deposits, and payable. Anyhow, the reefs from which this alluvial gold has been washed down from Injakalongoe towards the Zambesi river are mighty, and according to all surface indications of splendid quality. They are all full of iron pyrites, and we have proved gold in the pan and by chemical analysis. They are very broad, up to 30 feet, and the gold is finely distributed in the quartz, as in the blanket formation of the Rand. They have been tested by old workings, and I am convinced that they at least equal most of the payable gold mines of South Africa of our days.

We have two great points which add to my conviction. The one is the neighbourhood of the navigable Zambesi river, on which regular steam navigation is going on already up to Tete; the second fact is the abundance of timber and fuel. This whole northern part of Macombe's country is one great forest, in which the settlements of the natives are dispersed. *Acacia* and *Mapani* trees, the best known mining timber in Africa, are abundant. We have simply to cut it near our mines, and, I may mention that coal also is very near these gold districts, as a little higher up towards north-west the so-called Tete coal formation commences, which is now already worked north of the Zambesi. Besides these favourable circumstances we have cheap and plentiful labour in the country. Macombe's people nowadays go to Untali and Macequeze to work, but they have declared they would much rather remain in their own country if mining would commence, as in the south. I think it would not be difficult to make arrangements with Macombe for a continual supply. I shall arrange all this as soon as I return to Fura, and shall soon be in a position to lay definite facts before the public.

At this moment it may suffice to state in general that Fura is one of those districts from which labour now is supplied for the southern mining centres.

When I had finished these explorations in three months' work, I built a station, left two gentlemen, one of whom was a mining engineer, in charge, for following up our discoveries, and with another mining engineer, Mr. Gramann, marched south-west in order to pay a visit to the great Chief Macombe, and explore his whole country from one end to the other. I marched alongside the Muira river as far as "Misongwe," the residence, or, as they call it in the country, "Simbabwe" of Macombe. Macombe is not a name but a title, and I can prove that Monomotapa of the 16th century was then already identical with the dynasty of Macombe. That the residence of the Monomotapa was near the Injakafura district and not further west in Mashonaland and Matabeleland is clearly proved by all Portuguese reports.

In 1569, King Sebastian sent out Francesco Barretto with a large expedition to East Africa, in order to conquer the gold mines in the

Makalanga country. Barretto went up the Zambesi river as far as Sena, and from there he sent ambassadors to the Chief of the Makalanga, in order to arrange a contract. If the Mazoe and a district in Mashonaland had been in question, Barretto would certainly not have gone to Sena, but at least up to Tete, and negotiated from there. Sena was situated on the eastern borders of Monomotapa, as it is situated to-day on the eastern borders of the country of Macombe. The Portuguese then made a contract with the Makalanga, in order to beat the Mongasi or Monge, a tribe which lived north of the Makalanga, on the borders of the Zambesi, between Tete and Sena. There is not the least doubt that this name has been preserved in the "Injamongali" of to-day, in whose district the northern gold reefs we discovered are situated, and where I built a station at Tenge. "Mongali" is the adjective form of "Monge."

From Sena, Barretto went up the river and apparently took the same road which I took last summer to Injakafura and Injamongali. This expedition, I may mention, failed from illness and want of food. Barretto died.

In the following year, Vaso Homem tried to reach the Makalanga empire from Sofala. Can it be imagined that he would have started from Sofala if a district near the Mazoe River was aimed at? Will you please kindly look at the map in order to form your own opinion on this point. I mention these facts because there is a dispute about the situation of the Monomotapa empire up to this day. The book I am about to publish on the subject will enable me to put all my evidence before the public.

Into the centre of this old country I marched about the middle of July last year, and arrived in Misongwe on the 18th July. Misongwe is a place of about 5,000 to 6,000 inhabitants, and, from a native point of view, rather strongly fortified. It is about 1,200 feet above the level of the sea.

Makalanga means "people of the great sun," "Ilanga" being the name for sun. The tribe belongs principally to the Bantu race of Central East Africa, but they have a strong Asiatic influx of blood, more than any other nation which I know in Africa. The constitution is a despotism, but mitigated by a patriarchal relation between the chief and people. All soil belongs to the Macombe, who hands it over to the individuals for working it. Altogether Macombe seems to have the right to all property in the country, but I do not know exactly how far this right is enforced. It seems, in weddings, the female side has a sort of co-decision; divorces are frequent. The man does not exactly pay for the girl, but he gives the father of the bride a present in goats. Ten goats for a pretty girl is considered a rather high figure.

All the Makalanga are soldiers; conscription is the fashion. Macombe has about 7,000 rifles. Besides these, arrows and assegais are still used.

Among the occupations, mining has the first rank. Gold is washed in the rivers, and sold in quills. Iron is dug in holes, and is melted in furnaces. It is won as well from oxidised quartz as from iron-stone. The Makalanga are very clever blacksmiths, and their knives are much sought after for bartering articles. They also fabricate picks and hatchets. Besides this, they are very smart carpenters. Wood-carving is highly developed in their country. Further, their mats also show great cleverness and taste. The women all over the country fabricate earthenware goods,

such as buckets, pots, and tumblers. Great they are in brewing beer. From June, when the harvest is ripe, happiness and dancing goes on all over the villages. More than anything else, this part of their national life gives the Makalanga boys in Umtali and Macequece home-sickness, and induces them to desertion.

Circumcision was formerly common, but is now abandoned. The dead are buried in a lying position in graves. The souls of the dead, the "Mazimos," are honoured by drink and food sacrifices. Very interesting are the religious ideas of this tribe. The Makalanga believe in the great God "Mlungu," who lives in the blue sky. Besides him, there is a god who lives on or in the earth, who is worshipped. That is "Kabulu Kagoro." He owns all the fires in the land, and his service is done by the high priestess of this tribe, an old woman who has the title of "Quara Quate." She sees him, speaks to him, and reports his orders to Macombe. She also gives him sacrifices, which are called "juswisse." These sacrifices consist of meat and grain. Every year a big sacrifice by the whole clan takes place, near the graveyard of the chiefs. Then all the fires in the country must be extinguished, as they have grown dirty by the use of a year. Quara Quate then hands over to Macombe the sacred fire, which she keeps all the year in the house of Kabulu Kagoro. Macombe hands this over to his people, and all the fires have to be re-lighted from it. You will agree with me that this is a very interesting point, which shows some likeness to the Parsee worship and certain ancient Semitic worships. I have not found anything of this sort in any other African country.

The type of the people is not so much Arab, as distinctly Jewish. The men are particularly strong and big in stature, generally Bantu forms. Then you meet again with small types, with very fine clever expressions. The girls are prettier than most Bantu girls, and remind one a little of European ladies. They are rather graceful and not at all bashful in their intercourse with strangers, quite different from the submissive behaviour of ordinary nigger girls. When they hand you anything over, they take it into both hands and bow deeply. When they salute you they lay their hands above the bosom and make two or three courtesies. The men also courtesy when they salute you. Apparently they have learned it from the Portuguese. If a Makalanga passes your tent or house, he takes off his cap till he is out of sight. The manners of this clan, at least of Misongwe, seem to be rather loose. Beer is much drunk, and dancing seems to go on daily. The abundance of babies is remarkable. The whole race are agriculturists. Millet, maize, ground nuts, sweet potatoes, and tobacco are grown everywhere.

Macombe is held in religious awe, and it was interesting to me that he as well as Cuntete, who accompanied me to London, always protested they did not belong to the Makalanga tribe, but were of other divine origin. Whether the family is of Asiatic origin, I could not state. All the princes of the house have the title "Injakafura."

I stayed in Misongwe about a week, and succeeded in entirely making friendship with Macombe. Macombe is a man of about 48 years of age. When we entered the place, we were not exactly delighted to see two skulls of whites on poles over the entrance door, but we succeeded soon in winning the friendship of the Chief, which is of a very great importance for our further work in the country.

Macombe's country is situated in the Portuguese sphere of interest, but up to this time it is practically independent. I hope the Portuguese will be able to settle with Macombe, and I shall be pleased to help them in these endeavours. Macombe is well aware that he has to settle somehow or other with the whites, whom he sees advancing in all directions, building railways near his dominion, and whom he knows he cannot resist for ever. I think that was the main reason of making him inclined to arrange with me. I have made brotherhood with him, and he gave me his favourite brother Cuntete as companion through the rest of his country, and even as far as London. He also gave me the right of starting a store in his country, and I think that this is well worth having, as he is rich in gold, ivory, wax, and indiarubber, and a well-managed store is sure to pay.

Altogether I think this part of Africa, from an industrial point of view, must have a future. The advantage of the navigable Zambesi leading to it cannot be valued highly enough. When the Mashonaland railway has been finished as far as Tete, you will soon perceive that as the Zambesi trade turns towards Mashonaland, the trade of Mashonaland will turn towards the Zambesi, and seek an outlet at the Indian Ocean.

The country of Macombe is well adapted for plantations along the Zambesi. The sugar-cane grows abundantly on the banks of the Zambesi, and I think that fine tobacco may be grown all over the country. At the western side of the country, we discovered a mountain range called Baraouro, which rises up to 4,000 feet, and is well watered. Here tea, cocoa, coffee, and other cultivations may be started, and in this part European settlers will find a healthy climate. The south of the country towards the Pungwe is again a big forest, full of game, an Eldorado for the hunter. I will not here enter on the question whether we have in the Fura district, the real spot of the ancient Ophir, as this question is only indirectly connected with the natural wealth of Macombe's country. I personally have reasons which I will bring forward, that King Solomon's gold expeditions were directed to this part of the world. On the Zambesi, Solomon's people could find all the goods which are mentioned in the Bible as freight of the Ophir ships—gold, ivory, gum-trees, and guinea-fowls, as well as apes. Up to the Fura district was a continual water connection from the Red Sea. Merchants could sail up the river as far as the Lupata Gorge, and it is quite likely that they heard from the natives at the mouth of the Zambesi of the existence of this alluvial district. The likeness of the names, Fura and Afer, is perhaps not decisive, but still very remarkable. So also is the fact that Fura to-day has the same meaning in the Makalanga language as Ophir had in the ancient Semitic languages, "hole" or "mine." The existence of ancient Semitic ruins, as well as the survival of the old Semitic religious ideas in the population are also remarkable. What I am inclined to consider a strong evidence in favour of my Ophir theory, is the fact that when the Portuguese arrived in South Africa Arab traders told them that up the Zambesi river was the gold land of Afur, our Fura of to-day, and this was identical with King Solomon's Ophir. Now, the Arabs were the natural descendants of the ancient Sabæan conquistadores, and a continuity of tradition from the ages of their ancestors on this point is not at all surprising.

The country I have explored last summer is not situated in the moon, but in shipping communication with Europe, and plenty of other people

will go and see it, and look after these questions. So it is no use disputing now, as the exploration has only commenced. What I want to state here is that this country has a future of its own, and that its opening up must prove of advantage to the development of trade and civilisation in South Africa. When mining commences, and new fields for export are created, when the natives by the honest work we will give them earn more pay than now, and are therefore enabled to buy goods from Europe, then trade must be developed rapidly. Plenty of new goods for export will be created for the European markets, and the buying strength of the country must also be hereby increased. Roads will be built from the navigable Zambesi into the country, modern wagons, and in time to come, railways will open up the district more thoroughly. Then Macombe's country will be one of the districts of the world's commerce.

Mr. JOHN R. NEWBY gave the second address to the Society on Iceland, being an account of his circumnavigation of the island, and of his visits to the various ports.

The address was illustrated with a number of choice Icelandic curiosities, and with lantern slides from photographs of the country taken by Mr. Newby on his voyage.

The CHAIRMAN moved that the thanks of the Society be given to Mr. Newby for his most interesting address and exhibition, which was seconded and carried.

Mr. NEWBY responded, and promised his final address on the Geyser for May.

The 541st Meeting of the Society was held in the Members' Room on Tuesday, March 27th, 1900, at 7-30 p.m. In the chair, Mr. J. R. BOSWORTH.

A paper, describing a visit of officials from the Gold Coast in search of health to Tenerife, by Lient-Colonel E. Rogers, was read by the Secretary.

A very large number of journals, received by the Society in the course of the previous year, were laid on the table, and the Secretary referred to the valuable information contained in them, and called attention to the illustrations and maps, some of them of very great beauty.

Heartly thanks were given to Colonel Rogers and the Secretary.

The meeting did not break up until 10 o'clock.

MANCHESTER GEOGRAPHICAL SOCIETY.

The Annual Meeting was held in the Library, Monday, May 14th, 1900, at 12 o'clock noon. In the chair Mr. HARRY NUTTALL, vice-chairman.

Letters of apology for absence were read.

The Secretary read the notice convening the Meeting.

The Minutes of the last Annual Meeting, held Wednesday, May 31st, 1899, were read and approved.

The Report of the Society for the year 1899 was read by the Secretary.

REPORT OF THE MANCHESTER GEOGRAPHICAL SOCIETY FOR THE YEAR 1899.

THE events of the Past year have demonstrated in a very marked manner the necessity for the work of this Society in more than one direction.

MEETINGS.

More than forty meetings of the Society have been held during the year, and have been the occasion for a large amount of interesting and valuable information being made known to the Society by the distinguished travellers and others who have spoken to the members.

The addresses have been largely illustrated with photographs and slides, pictures, maps, and exhibitions of curiosities, and the meetings generally have been very well attended.

CORRESPONDENCE.

There has been laid upon the table at the meetings a large number of letters, reports, papers, and documents from all parts of the world.

PRESENTATIONS.

There also has been presented a very large number of maps, charts, books and special papers, whilst the usual exchanges have been duly received.

CORRESPONDING SOCIETIES.

Many members who have travelled abroad have received great kindness and attention from the officials of Corresponding Societies, upon the production of letters of introduction from this Society. We have not had many opportunities of reciprocating this kindness, but are quite prepared to do so when the occasion arises.

DELEGATIONS.

The Society has had several delegations this year. To the International Geographical Congress at Berlin, to the British Association at Dover, to the Lancashire and Cheshire Union of Institutes, and to several other meetings. The reports of the delegates have already been given to the Society.

EDUCATION.

The question of Geographical and Commercial Geographical Education has been kept steadily before the Council, and alone or in conjunction with other bodies considerable progress has been made.

Our Examiner carried out the examination in Geography for the Yorkshire Institutes' Union, and he also examined the papers of those who had replied to the questions on Geography, and awarded the prizes. These questions have brought many replies, and evidently have aroused much interest amongst the young children of the members.

JOURNAL.

Several numbers of the Journal have been issued and have been well received.

We shall be very glad to have some help from members who are able to translate Japanese, Chinese, Russian, or Slavonic languages for the purposes of the analysis.

THE LIBRARY AND MAP ROOM.

In these departments the encouraging feature is the very large number of additions, but the discouraging one is that we are not able at present to give the needful personal attention to them. We want lists of maps, catalogues of books and papers, and are sadly in want of more shelves for books and presses for maps. We have grown too big for our clothes. Perhaps the most valuable additions to the Library (and Museum) during the year are the large collection of books, maps, and papers relating to the Colonies. The Society has all along felt the need for this in view of the wide comprehensiveness of this extended Empire. We have occasion to thank several of the Agents-General of the Colonies (particularly of Canada) for their generous gifts of precious material in this particular department.

The Museum has been very useful. Samples have been lent out, and members have called to see and examine the collection, and we are glad to say that it is also increasing in number and in the value of the exhibits. The Secretary's room has been turned into the Museum room, and, with some addition of needful furniture, will suffice for some time. The mineral specimens from North America are very valuable.

EXCURSIONS.

Several excursions were taken by the members during 1899, which were very much enjoyed. That to the Isles of Scilly was a memorable one. But we find that the members preferred to go abroad in small parties, and, as has been mentioned in another part of this report, a very large amount of help was given to our members who have thus travelled. This is, indeed, one of the most valuable parts of the work of the Society, not only for its effects upon our members, but by the drawing of ties of friendship closer with our friends in other countries, whom we always find are quite responsive.

VICTORIANS.

The "Victorians" have had another active season, and they have delivered nearly 70 lectures. Their report is appended hereto.

FINANCE.

In this department the Society is weak, and in consequence its work is hampered in every direction. The Council has taken this matter in hand by appointing a gentleman to act as Canvassing Agent. So far the action has been justified, a large number of members have been added to the Society, and we hope to have a considerable number of members added to the roll.

The work of the Society would be more complete, more satisfactory, and more prompt if our finance was better, and the Council appeals to the members to help in this matter in the only way by obtaining fresh members.

DEATHS.

This is indeed manifest when it is remembered that this year we have had about 50 losses from death. Amongst those old and tried who have gone we may mention that we have lost two of our Vice-Presidents, Mr. B. Armitage and the Right Hon. Jacob Bright, besides some of the oldest members of the Society, and amongst those we have to lament may be mentioned Samuel Booth, Esq., J. J. Doyle, Esq., George Fairbrother, Esq., the Chevalier R. Froehlich, K.C.I., Arthur Greg, Esq., J.P., William Hall, Esq., John Holland, Esq., Emil Liebert, Esq., Consul for the German Empire; James Naylor, Esq., John C. Needham, Esq., Charles Scholes, Esq., Henry Simon, Esq., C.E., Ellis Tootill, Esq., and others.

The Council trusts the members will kindly remember and act.

The principal addresses given to the Society during the year have been as follow:—

EUROPE.

"From Paris to Budapest," Mr. J. B. Latham.

"Visit to the Tatra," Mr. J. B. Latham.

"The Changes in the Political Map of Europe during the 19th Century as illustrated by Copper Coins," Mr. D. F. Howorth, F.S.A.S.

"Portugal, the Portuguese, and the Celebration (1898) in honour of Vasco da Gama," Mr. John R. Newby.

"The Isles of the West (Scilly)," Mr. Joel Wainwright, J.P.

"A Tour in the Scilly Isles, and the way thither," Mr. S. H. Brooks, F.R.G.S.

"The River Wye," Mr. J. Wilde.

"Scottish Song, Story, and Scenery," Mr. J. S. Reid.

"Mr. G. E. T. Smithson, of Newcastle," the Secretary.

"The Town and College Buildings of Cambridge," Mr. Mark L. Sykes.

"Boggart Hole Clough," the Secretary.

"Progress of the Manchester Ship Canal," Mr. Reuben Spencer, J.P., and others.

"Saddleworth and Melfham," Mr. T. Dentith, Mr. G. F. Armitage, and others.

"Hungary and the Carpathians," Mr. S. Wells, F.R.G.S.

"Dover, Canterbury, and East Kent," the Secretary.

"British Association Meeting at Dover," the Secretary.

"First Ascent of Lang Jökull, Iceland," Mr. F. W. Howell, F.R.G.S.

"Berlin: History and Description," Rev. S. A. Steinthal, F.R.G.S.

"Meeting of the Seventh International Geographical Congress at Berlin, 1899," Rev. S. A. Steinthal, F.R.G.S.

"Cutlery Manufacture," Mr. Atkinson.

"Heavy Iron Manufacture at Sheffield," Mr. Brown.

"The Isles of Scilly: Visit of the Society," the Secretary.

ASIA.

"Our Indian Empire, with Personal Reminiscences of a Tour from Charing Cross to the North-West Provinces," Mr. E. F. G. Hatch, M.P.

"The Panacea for China," Mr. G. M. E. Playfair, H.B.M. Consul at Foochoo.

"Travels on the Yangtse Kiang," Mrs. A. Little.

Cashmere and Thibet," Mr. J. A. Douglas, M.A.

"Afghanistan: Its Ruler, Court, and Customs," Dr. L. Hamilton.

"Kola as a Timber Port," Mr. H. Albrow.

AFRICA.

"Work and Travels in East Central Africa: Mombasa to Lake Victoria, and North to the Nile," Col. J. R. L. Macdonald.

"Ophir," Dr. Carl Peters.

"German East Africa," Rev. H. C. Porter, M.A.

"Egypt and its Monuments," Col. J. J. Mellor, M.P.

AMERICA.

"Cuba: Queen of the Antilles," Mr. J. Howard Reed.

"The Yellowstone Park, U.S.A.," Mr. F. H. Worswick, M.D., M.R.C.P. Edin.

"The Klondyke," the Secretary.

"Travels in Brazil in 1898," Mr. J. M. Borastn.

ARCTIC AND ANTARCTIC.

"Five Voyages to the Arctic Regions," Mr. W. S. Bruce, F.R.G.S.E.

COMMERCIAL GEOGRAPHY.

"Report of Conference of Geographical Societies on Geographical and Commercial Museums," the Secretary.

"Letters to Geographical Societies on Geographical and Commercial Museums' Conference," the Secretary.

"Contents of Manchester Geographical Society's Museum," the Secretary.

GEOGRAPHICAL EDUCATION AND COMMERCIAL GEOGRAPHY.

"The Teaching of Applied Geography," Mr. A. J. Herbertson, F.R.G.S.

"English and Foreign Maps," the Secretary.

MAP CHANGES, 1898.

"Astronomical Map Changes in 1898," the Secretary.

"The World in Space," Mr. H. C. Martin.

But in addition to these addresses many short communications have been made, and valuable contributions, often oral, to the information given to the Society have been added.

A matter for the anxious and serious consideration during this year has been the fact of the termination of the lease of the present building at the end of the year 1900.

It had been intended to make an appeal to our members this year, asking them to place the Society in the position it ought to occupy, but it was felt whilst urgent appeals were being made on account of war and famine it would be inopportune. The Council has considered the matter, and has decided to ask for a lease of the premises from the Dean and Canons. If an agreement can be arrived at, then for the present the matter will be settled.

Several other places have been examined in view of no arrangement being come to, but as yet no place has been found quite suitable for the present and for extension.

REPORT OF THE "VICTORIANS" FOR 1899-1900.

The report of the "Victorians" for the year 1899-1900 was read for the Honorary Secretary, Mr. C. A. Clarke.

The session just completed has been a most successful one, and the subjects chosen have created great interest amongst the members of the many societies now affiliated with us. It, however, becomes increasingly difficult for the "Victorians" to give lectures to outside societies; and preference must be given to affiliated societies, and to the demands of members of this Society. It is doubtful whether many lectures can be given in future to societies not affiliated. In any case the number must be very limited.

The audiences this year have been largely made up of adults, very few children being present.

The numbers present have averaged from 50 to 1,100 persons.

About 70 lectures have been given, and the subjects have been various. The subjects chosen by some societies were apparently so inappropriate for their audiences that the selections occasioned some surprise amongst the "Victorians."

Owing to deaths and disablements the active lecturers have become somewhat reduced in numbers, and the "Victorians" appeal to the members to come to their help.

Many members who could not take their place in the lecturing body could greatly help if they would give one or two lectures in each season, giving variety of choice to the members and to the affiliated societies.

Last October a new list of lectures was prepared and issued.

For many years the "Victorians" have been dealing with South Africa, and it was not surprising under present circumstances that fifteen applications were acceded to for lectures on South Africa and the Transvaal. The same remark applies to our Indian domain and the Far East. The subjects have been and are especially studied and illustrated, and no doubt in the coming season many requests will be made for Indian and Chinese subjects.

The terms upon which the lectures are given at the request of members of the society and of affiliated societies, and the list of subjects is here given. Members will see how very wide a field is covered by them; but, in addition, many of the "Victorians" have other subjects ready which they are prepared to use when required.

TERMS FOR LECTURES.

The terms upon which these Lectures are delivered are as follows:—

Any Member of the Manchester Geographical Society, or any Affiliated Society, is entitled to make application for "Victorian" Lectures during the Session.

The Lectures must be advertised as by Mr. ———, a "VICTORIAN OF THE MANCHESTER GEOGRAPHICAL SOCIETY."

The services of the Victorians are *gratuitous*, but to meet the necessary expenses of carrying on the work a small fee for each Lecture is charged, with the Railway Fares, Lantern Hire and Carriage, Hire of Slides, and other special expenses.

Lectures by the Victorians for *others* than Members, or Affiliated Societies, can only be given sparingly, and will be charged from £3 3s. for each Lecture, with the addition of travelling and lantern expenses.

Any balance left out of these charges, after paying the expenses incurred, is applied to the repair and upkeep of the lantern, and the making of new slides. The Society's Lantern is NOT lent unless a "Victorian" Demonstrator accompanies it.

Applications for Lectures, or for any information, should be made to Mr. C. A. Clarke, Hon. Secretary, "Victorians," 16, St. Mary's Parsonage; or 26, Seymour Road, Cheetham Hill, Manchester.

The "Victorians" will be glad to arrange Lectures, to form a series, for Technical or Continuation Schools.

The list of VICTORIAN LECTURES, 1900-1901, is as follows:—

- | | |
|---|--|
| 1 The Earth in Space | 38 Egypt—The People, Manners, Customs, and Religion |
| 2 The Sun, Moon, and Eclipses | 39 " —The Nile and the Monuments |
| 3 Natural Phenomena—Rainbow, Geysers, Volcanoes, &c. | 40 Ceylon, "The Pearl of the East" |
| 4 Physical Geography | 41 The Far East |
| 5 Water Action shaping the Earth | 42 "The Land of the Rising Sun" |
| 6 Heat and Compression in Mountain Raising | 43 A Chat About China |
| 7 Landscape Making by Heat, Cold, and other Natural Agents | 44 Greater China |
| 8 The Elements of Map Projection | 45 China—Geographical and Historical |
| 9 Ancient Battlefields | 46 China—The Middle Kingdom |
| 10 The Battlefields of Europe | 47 The Rivers and Canals of China |
| 11 Obligations of Geography to Missionaries | 48 China—The Yangtse Kiang |
| 12 A Little Known Corner of Yorkshire | 49 The Productions and Commerce of China |
| 13 Westward Ho! | 50 From London to Australia via Suez Canal |
| 14 A Week in the Scilly Isles | 51 The Dominion of Australia |
| 15 English Cathedrals | 52 Australia—Discovery and Exploration. Developments, Productions, and Present Condition |
| 16 The Western Highlands of Scotland | 53 " Victoria and New South Wales |
| 17 The "Scott" Country | 54 " Queensland and South Australia |
| 18 The Land of Burns | 55 " Western Australia |
| 19 The Lakes of Killarney | 56 Tasmania |
| 20 The Story of the British Navy | 57 New Zealand—its Alps and Glaciers |
| 21 The Armies of the Empire—some incidents in History | 58 British South Africa |
| 22 The Geography of France | 59 " East " |
| 23 Tour through Normandy | 60 " West " |
| 24 The Loire | 61 The Discovery and Exploration of the Congo |
| 25 A Fortnight in Belgium. Belgium Historical, Topographical, Political, Arts and Letters | 62 Across Africa with Stanley |
| 26 A Cruise in Dutch Waters | 63 The Commercial Products of Central Africa |
| 27 Across Sweden by the Gota Canal | 64 The Great Lakes of Central Africa |
| 28 The Black Forest | 65 Uganda, "Land of the Nile's Springs" and "Pearl of Africa" |
| 29 Switzerland | 66 German East Africa—"Pangani to Nyasa" |
| 30 A Scamper through Italy | 67 Africa—The Zambesi and Nyasaland |
| 31 Spain and the Spaniards | 68 The Dominion of Canada |
| 32 Gibraltar and Tangiers | 69 The Eastern Provinces of Canada |
| 33 Andalusia and the Alhambra | 70 The Lakes and Middle States of Canada |
| 34 The Canary Islands and Madeira | 71 The Great North-West |
| 35 Genoa and Columbus | 72 Across the Rocky Mountains |
| 36 The Mediterranean. A study in Comparative Geography | 73 British Columbia and the Yukon |
| 37 Palestine, Old and New | 74 The American Commonwealth |
| 38 India—General History and Physical Geography | 75 From New York to San Francisco |
| 39 " —The North-Western and North-Eastern Frontiers | 76 Cuba, "The Queen of the Antilles" |
| | 77 The Philippines |
| | 78 Arctic Exploration |
| | 79 Antarctic Exploration, Past and Prospective |

These Lectures can be illustrated with Lantern Slides if required. For some of the lectures on the Colonies small collections of natural products can be exhibited.

Members and Societies desiring to have lectures will oblige the Victorians if they will please make early application.

The following Lectures can be given on terms to be had from the Honorary Secretary:—

- | | |
|----------------------------------|--|
| Sights and Scenes in North Wales | British Central Africa--Nyasaland |
| Little England Beyond Wales | The Transvaal |
| From England to Japan | British South Africa |
| Egypt of To-day—a Modern Miracle | The Congo—Discovery and Exploration |
| British East Africa | From Capetown to Cairo |
| | The flora of the Carboniferous Rocks, etc. |

One difficulty the "Victorians" have is that applications for the lectures are not made earlier.

It would be a great help if these requirements were known early, for we must remember that by October many of the "Victorians" have made other engagements, which frequently make it difficult and sometimes impossible to give lectures desired by late comers.

A very large number of demands, by those who are neither members nor affiliated, were made for lectures which it was quite impossible to grant. Some of them it would have been a pleasure to concede, but the demands on the "Victorians" prevented this.

The other departments of "Victorian" work have been proceeded with during the year, but they regret that more has not been accomplished.

The "Victorians" are greatly indebted to some of their members who have given great care and trouble in the preparation of many special slides for their use.

They regret that Mr. C. H. Bellamy has had to take his residence in France, and will not be able to share in the home work, but the members will be pleased to see that he has been giving "Victorian" lectures in the North of France.

The following are the lectures given by "Victorians" from October, 1899, to March, 1900:—

OCTOBER.

Walkden: Egypt and the Monuments.

Winnington: The World in Space.

Cheetham Hill: The Transvaal.

Leigh: The World in Space.

Winnington: China.

Moss Side: The World in Space.

New Mills: The Transvaal.

Todmorden: Across Africa with Stanley.

Linthwaite: Nansen and the North Pole.

NOVEMBER.

Blackburn: The Transvaal.

Manchester Grammar School: Andalusia.

Greenfield: The Transvaal.

Heywood: London to Australia.

Oldham: Cuba.

● Prestwich: Australia.

Blackpool: Egyptian Exploration.

Golborne: Canada.

Eccles: The Transvaal.

Ardwick: The Transvaal.

Moss Side: Water Action in Forming the Land.

Wigston Magna: Nansen and the North Pole.

Croix (France): Cornwall and Devon.

Farnworth: Westward Ho!

Eagley: The Transvaal.

Walkden: North Wales.

Eccles: Australia.

DECEMBER.

Culcheth: The Earth in Space.

Oldham: British Columbia and the Yukon.

Leigh: The Scilly Islands.

Meltham: China.

Patricroft: Switzerland.

Dover: The Transvaal.

Winnington: British Columbia and the Yukon.

Crumpsall: The Transvaal.
 Farnworth: The Scilly Isles.
 Oldham: The Transvaal.
 Children's Lecture: The World in Space.
 Macclesfield: South Africa.
 Oldham: The Transvaal.

JANUARY.

Oldham: Elephants.
 Children's Party: The War in South Africa. The Ships of the Navy.
 Winnington: Japan.
 Swinton: Tasmania.
 Priestwich: Across Africa with Stanley.
 Leigh: Switzerland.
 Chorlton-on-Medlock: Fashoda.
 Heckmondwike: South Africa.
 Winnington: Belgium.
 Oldham: Switzerland.
 Moss Side: At a Higher Grade School.
 Meltham: South Africa.
 Burnley: The Transvaal.

FEBRUARY.

Moss Side: Switzerland.
 Leigh: The Yangtse Kiang.
 Audenshaw: Switzerland.
 Salford: The Transvaal.
 Sale: The World in Space.
 Walkden: Tasmania.
 Eccles: British Columbia and Yukon.
 Eccles: The World in Space.
 Farnworth: London to Australia.
 Heywood: Scilly Isles.
 Whaley Bridge: British Columbia and Yukon.
 Farnworth: Japan.
 Grammar School: The Harz Mountains.

MARCH.

Moss Side: Victoria and New South Wales.
 Hollingworth: Australia.
 Golborne: South Africa.
 Burnley: Scilly Isles.
 St. James', Higher Broughton: Scilly Isles.
 Monton: Scilly Isles.

The "Victorian" lecturers hope that those members who demand their services on cold winter nights will make needful provision for their comfort, and that where it is possible the audiences shall be reasonably sufficient.

The lecturer will esteem it a favour if in any application the kind of audience they are expected to address may be specified.

They have no objection to speak to children if that fact is known beforehand.

The "Victorians" are glad to be of use to the society in the various departments of their work, and, as far as they are able, are willing and anxious to do themselves and to enlist other members to help in a work which is often of much interest and enjoyment.

C. A. CLARKE, Hon. Sec. "Victorians."

The balance sheet for the year 1899, with the auditor's certificate, was read, showing a balance against the Society at the close of the year of £59 4s. 7d.

REVENUE ACCOUNT.

JANUARY 1st TO DECEMBER 31st, 1899.

Cts.

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The Chairman regretted the absence of Mr. Steinthal from unavoidable causes, and proposed the adoption of the reports just read, the balance sheet, and the reports of the delegates to Berlin, Dover, the Lancashire and Cheshire and Yorkshire Institutes, and of the examiner in geography. He also proposed a vote of thanks to Mr. S. H. Brooks for his gift to pay the debt of the society last year. In reference to the present position of the society, he thought we should have at least 2,000 members, which were required to put the society on a proper footing, and enable it to have proper accommodation and an enlarged staff. He did not see why in Manchester they should not get that number of members, and if they could do so they would be able to carry out their work in the most effective manner. With the continual expansion of the British Empire a knowledge of geography in detail became more and more important every day. We had had an example of the want of geographical knowledge in South Africa quite recently. The Government could not yet have a complete survey of the whole territories of the Empire, but if we had had a better survey of South Africa at the beginning of the war a great many lives would have been saved. We should no doubt have other examples arising from time to time—it might be in wars or in commercial enterprises—of the necessity for this information. The society could not supply Government with surveys, but it could disseminate information and educate a district such as this, from which men were going out to all parts of the world. If they were better equipped with geographical information it would be a great advantage to them. The report showed a very large amount of work done last year, over forty meetings of the society, well attended, where addresses of the first importance were given, many of them by distinguished addresses of the first importance were given, many of them by distinguished soldiers, Civil Servants of the Crown, by missionaries and by distinguished geographers, besides many very interesting addresses by their own members and others. The work done in connection with the Commercial Museum, with the issue of the society's journal, and in many other ways gave great satisfaction.

The "Victorians" had again placed the society under obligation by the delivery of more than 70 lectures, some of them being given to large audiences and being highly appreciated, and for literary and photographic work.

The excursions of the society had been greatly enjoyed, and were looked forward to by many members with keen interest.

In these and in many other ways the society was making great progress and was doing efficient work.

The increase in the library and map room had during the year been very wonderful, and a serious effort must be made to make due provision for these constant and great gifts.

The death list for last year was a very sad one; over 50 members had from this cause been lost, amongst them their early and constant friends Mr. B. Armitage and Mr. Jacob Bright, and others. He felt this matter should be brought home to every member of the society, and all members should be urged to obtain others to take the place of those they so deeply regretted.

Mr. John Thompson seconded the resolution, which was carried.

The Chairman moved the election of the Council and officers for next year. (See list, page 68.)

Mr. Robert Stewart seconded the motion, which was carried.

Mr. J. H. Lewis moved a vote of thanks to the honorary auditors and their re-election.

Mr. Stewart seconded the motion, which was carried.

The honorary local secretaries were then re-elected.

Mr. T. W. Hampson moved that very hearty thanks should be tendered to the Council and officers of the society for their able services during last year, and to the chairman for presiding.

Mr. Lewis seconded the motion, which was carried, and responded to by Mr. Harry Nuttall, the chairman.

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Horwich Industrial Co-operative Society.
Independent Methodist Literary Society.
Leigh Literary Society.
Moss Side School Board.
Prestwich Co-operative and Industrial Society.
Walkden Co-operative Society.

THE JOURNAL

OF THE

MANCHESTER GEOGRAPHICAL SOCIETY,



THE HARZ MOUNTAINS, WITH BRUNSWICK AND HILDESHEIM.

By MR. E. W. MELLOR, J.P., F.R.G.S., F.L.Inst.*

[Addressed to the Society, in the Memorial Hall, Albert Square, Wednesday,
February 21st, 1900, at 7-30 p.m.]

INTRODUCTION.

IF we study the Map of Europe, we shall find that, speaking broadly, Germany slopes gradually down from the Alps to the Baltic Sea.

If proof of this were needed, we have it in the fact, that the principal rivers of Northern Europe—the Rhine, the Weser, the Elbe, the Oder, and the Vistula—flow from their sources to the North Sea and the Baltic, in very similar courses—so much so, indeed, that the very curves the rivers possess a degree of parallelism that is remarkable.

The slope of this German land toward its northern coasts, the further away it is removed from the Alps, becomes so extremely gentle and gradual, that the whole of Northern Germany forms one vast plain, extending the entire length of its Baltic shores.

Now, between the valleys of the Weser and the Elbe we find a very strange and remarkable geographical and geological feature, namely, an entirely isolated range of mountains.

When we realise that these isolated mountains rise suddenly and abruptly, especially on their northern side, from the great plain of Germany, I think that we are at once prepared to understand the feeling of mystery which these mountains aroused in the minds of the superstitious and imaginative plain-dwellers of primitive and early mediæval times.

* The illustrations are all from Mr. Mellor's photographs.

Such are the Harz Mountains!

Geologically speaking, the Harz Mountains were upheaved at some very remote period by the convulsions of nature.

Geologists tell us that the Harz Mountains correspond in formation with the Vosges mountains on the west of the Rhine.

The Harz consists principally of granite, over which are strata of "grauwacke," or grey rock, and clay slate.

The Harz Mountains are very rich in minerals, being second only in Germany to the Erzgebirge Mountains in Saxony. The Harz, therefore, abounds in mines — iron, copper, marble, sulphur, alum, arsenic, are all found here, also in the mine of the Rammelsberg near Goslar (a town which we visited), a peculiarly rich argentiferous lead ore.

Mining operations have been carried on in the Harz since the 10th century, and, no doubt, some of the earliest Harz towns were those which sprang up round the mines.

Probably, also, the miners of that early period, who spent so much of their lives in the bowels of the earth, and in the caves of the mountains, originated the belief in the imps and gnomes, who, in those credulous and superstitious times, were supposed to live in the Brocken and other mountains of the Harz.

These mountains were first called "Harz" at the end of the eighth century. According to some authorities the name "Harz" is derived from "Hercynian Forest," the title which the ancient Greeks gave to the whole of the mountains of Central Germany.

The German word "Harz" means "resin." "Harz-gebirge" then signifies "Resin-mountains;" "Harzbaum," "Resin-tree," or Fir-tree, or Pine-tree.

Whether we take the ancient "Hercynian Forest," or the more modern "Resin Mountains," as the correct foundation for the name Harz Mountains, we find that both are apt. Although the Harz Mountains rise above the level of forest-tree vegetation, their slopes and the lower mountain tops are covered with a vast extent of dark pine forest, whose only denizens in early times were bears, wolves, and lynx.

It is only on the lower mountain slopes, and in the deep valleys, that we find other forest trees, such as oak, elm, and birch.

On the slopes of the Harz men made their patches of cultivation, established their strongholds, worshipped Wodan and their other heathen gods, and in spring-time lighted their "oster fires" in honour of Ostara, the spring goddess and earth-mother.

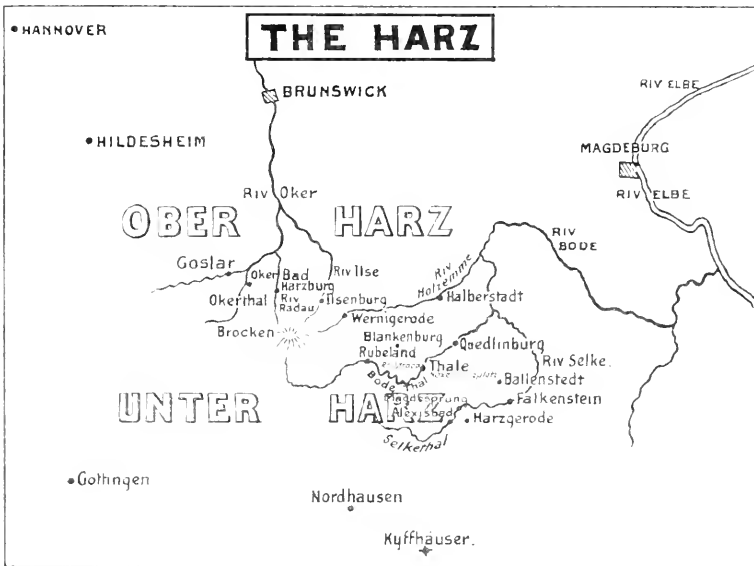
They thus continued their heathen worship long after the dwellers in the plain had been Christianised, who, hearing only scantily and fitfully in those days of difficult and dangerous

communication of the doings of their mountain neighbours, transformed their rites into devil-worship.

This was, no doubt, the origin of the many weird and fanciful legends of witches and devils in which the Harz Mountains in general, and the Brocken in particular, are so rich, and of which such free use has been made in Irving's story of Rip van Winkle and Goethe's tragedy of Faust.

The Harzers were forced by Charlemagne, in the year 780, to accept Christianity.

In the 10th century the Harz Forest was a "Bannforst," proscribed forest or hunting-ground of the German Emperors.



What this "Bannforst" was, is told us in a book which occupied the eleven years from 1224 to 1235 in writing, and which is now in the Royal Library at Berlin. It is the oldest law-book in Germany, and is called "Sachsen spiegel," i.e., "Looking glass of the Saxons." The following are translated extracts:—

"When God created man, he gave him power over fishes, birds, and over all wild animals. . . . Yet there are three places where peace is procured for the animals by the King's bann. . . . One of these is the 'Hart.' . . . Whoever catches game in these places, he must pay as the fine of the King's bann 60 schillinge. He who rides through the proscribed forest must have his bows and crossbows unstrung, his quiver covered, and his hounds and hunting-dogs kept prisoners."

“ If a man is hunting game outside the Bannforst, and his dog follows the game into the forest, then the man may follow the hound, but without blasting his horn or calling him to catch the game, he is only permitted to call back his dog.” And so on. So we see the ancient game-laws were pretty stringent.

As the imperial power declined, the Emperors gave away their castles and portions of the Harz to various monasteries and nobles in return for services, until, in the 12th century, the whole Harz was divided into a great number of small countships and lordships, the owners of which, from jealousy and other causes, frequently made war and committed depredations upon one another.

Thus we may trace the development of the famous German Raub-Ritter, or Robber Knights, who were secure in the thick Harz forest and mountain fastnesses.

That congeries of small states has gradually been obliterated, and the mountains and valleys of the Harz are now-a-days the haunt of the tourist, and the home of mining and its allied industries.

The Harz Mountains occupy an area of 786 square miles, of which rather more than a half—58 per cent—is in Prussia; rather more than a third—36 per cent—in the Duchy of Brunswick; and about 6 per cent in the Duchy of Anhalt.

The greatest length extends diagonally from north-west to south-east for about 56 miles, and their greatest breadth is about 20 miles.

The north-west and highest part of the range is called the Ober, or Upper Harz; the south-east and largest part is called the Unter, or Lower Harz.

The Brocken divides the Ober from the Unter Harz, and is usually regarded as part of the Ober Harz.

The Brocken is the highest summit of the Harz Mountains. It rises to a height of 3,743 feet above sea-level. This, of course, shrinks into insignificance when compared with the 15,000 feet of Mont Blanc and other snow-clad peaks of the Alps.

The Brocken does not lift its head to the level of perpetual snow, although Alpine flowers are found upon it.

Of our mountains the Brocken, perhaps, most readily compares with Snowdon, in Wales.

The Brocken rises about 200 feet higher than Snowdon. Like Snowdon, it has a mountain rack-railway.

This railway commences at Wernigerode, and the train takes upwards of two hours in winding and twisting its way to the summit of the Brocken.

Rising as the Harz Mountains do abruptly from the great plain of Northern Germany, their apparent height is exaggerated in the eyes of the plain-dwellers; geographically, however, they play an important part in the process of river-making.

The Harz Mountains are the first obstacle to oppose the cold moist winds which sweep over the great plain from the North Sea; and the mountain tops arrest the moisture, which is here precipitated in the form of cloud, mist, and rain.

Above the tree vegetation of the Harz stretch numerous peat-mosses, which are spongy and absorbent, and form the sources of many small streams. These numerous rills are too tiny to be indicated in the map. I only show you the larger rivers which they feed.

The Harz rivers all lie in deep narrow valleys, whose sides are in some places precipitous rocky chasms (especially so in the Bodethal), in other places heavily timbered.

After tumbling down the deep Harz valleys, these rivers flow placidly through the flat German meadow-lands, and become, most of them, tributaries of the Elbe, the splendid river which flows through Magdeburg and Hamburg to the North Sea.

Previously I said that 36 per cent, or about a third, of the Harz belonged to the Duchy of Brunswick.

Now, in old days when princes and nobles divided the land between them, they always sought to secure wooded mountains fit for hunting, as well as plains fit for cultivation; and so we read that the principalities consisted of a "hill domain" and a "lowland domain." Similarly, the Duchy of Brunswick had its "highlands" in the Harz Mountains, and its "lowlands" in the plain country surrounding the city.

It was very fitting then that we commenced our ramble at the quaint old city of Brunswick, for, notwithstanding its electric trams and modern improvements, it still contains many relics of mediæval times.

Leaving the plain country we proceeded to Goslar, a typical Harz town, and one of very great antiquity. Nearly 1,000 years ago the mine of Rammelsberg, near Goslar, was worked by the Franks.

Driving up the Okerthal and through a pine forest we come to Harzburg, called Bad Harzburg on account of its mineral spring, which attracts many visitors to its baths.

Next we proceeded to Ilsenburg, named after the legendary Princess Ilse, to whom I shall again refer.

We then ascended through the Ilsethal to the summit of the Brocken, the highest mountain of the Harz range. We descended from the Brocken through the Steinerne Renne Valley to the quaint old town of Wernigerode.

We continued down the Holzemme River to Halberstadt, a large bustling city possessing a beautiful old cathedral.

Thence to Blankenburg, where there is a long ridge of rock called "Teufels mauer,"—"Devil's wall."

Then to Quedlinburg, whence we ascended the stream of the Bode River right up to the pretty little town of Rübeland.

The Bodethal is strikingly wild and picturesque, and by many people is considered the finest scenery of the Harz.

We then visited the ancient town of Harzgerode, Alexisbad with its chalybeate spring, the Selkethal, and Mägdesprung with its ironworks.

Thence, travelling homewards, we paid a flying visit to Hildesheim, sometimes called the Nuremberg of North Germany.

BRUNSWICK.

At Brunswick we saw the Herzogliche Schloss, or Grand-Ducal Palace. It is quite a modern building, having been restored in 1865 after a fire.

The handsome portal is crowned by a colossal figure of Brunonia driving a four-horse chariot.

Brunonia allegorically typifies the go-ahead city of Brunswick.

There are two equestrian statues. The one on the left Duke Ferdinand, and that on the right Duke Wilhelm Friedrich. Both these princes were slain in the wars with Napoleon.

One of the most historic buildings in Brunswick is the Dankwarderode Schloss, or, more correctly speaking, a restored remnant of it. This was the fortified castle of Henry the Lion, during whose reign in the 12th century Brunswick first acquired importance.

By the 15th century Brunswick had become the chief city of the Saxon-Westphalian section of the Hanseatic League. The castle is connected by a covered passage with the cathedral. Going under this gallery we came to the Burgplatz beyond.

The first object which struck our eye was the ancient bronze lion of stiff Byzantine workmanship. It was erected on this spot by Henry the Lion as a symbol of his supremacy, and for over 300 years the Burg-grafen, or Ducal Bailiffs, publicly administered justice at the foot of the lion.

Henry the Lion was one of the most illustrious princes of the House of Guelph, from whom the Royal family of England are also descended.

At the end of the Post-strasse we came to the old Gothic Gewand-Haus, or Cloth Hall. From its name, I suppose that it was at some period used for this purpose, but, as far as I could see, the Gewand-Haus is now a wine merchant's establishment.

There is a beautiful renaissance east gable, which was constructed in 1590. It is, therefore, over 300 years old. The three archways project over the street footpath, so as we walked along we passed under the front of the house.

On the right, we entered the Altstadt-Markt.

No market, however, was going on when I took my photo-

graph, so I got an uninterrupted view of St. Martin's Church and the Altstadt Rathhaus. The church dates from the 12th century.

The Altstadt Rathhaus, or old Town Hall—for now-a-days there is also a modern one—is a beautiful specimen of German Gothic architecture of the 13th and 14th centuries.

The open arches have graceful tracery, the pillars of which are adorned with statues of the Guelphic princes. A fountain in the foreground was cast in pewter in the year 1408, and was restored about 40 years ago.

It is interesting to note that Spohr, the composer, was born here at Brunswick in 1784.

Here, too, was raised, in 1809, the famous regiment of "Black Brunswickers," to recover the Duchy from Buonaparte.

GOSLAR.

Now, leaving the plain country and coming to the mountains, we arrived at our first Harz town, Goslar. According to tradition, in 968, in the reign of Otto I., nearly 1,000 years ago, a rich vein of silver ore was discovered in the Rammelsberg mine, near Goslar. Otto rewarded the discoverer with 1,000 gold pieces, and himself came to Goslar.

The German emperors of the 10th and 11th centuries held diets and frequently resided at Goslar.

The town became rich and powerful, was walled round, and strongly fortified.

The photograph shows some of the old wall towers, called *Breite Thürme*, still surviving, and which gave to Goslar a quaint and mediæval appearance.

In passing round the town wall we came to another of these watch-towers, called the *Zwinger*. *Zwinger* signifies prison. This *Zwinger* tower, then, was formerly a prison. The walls are 21 feet thick, and seem to defy decay. This tower was finished with an extinguisher-shaped turret, like the towers in the illustration. The turret has, however, disappeared. To-day the *Zwinger* tower is used as a sort of restaurant, where one may walk out of the town, and sit and drink the light German beer.

The frogs were croaking right noisily in the reeds down below.

We entered Goslar by the old *Breiten-Thor*. We noticed the old wall of the town extending on each side of the *Breiten-Thor*, which, literally translated, is "Broad Gate."

This well-preserved old gateway is supported by a strong round tower, loopholed for shooting.

We felt as if we were living hundreds of years back when entering the town by this ancient narrow portal, from which, however, its portcullis is now gone.

Part of the ancient town wall has been cleared away to provide a good wide street from the station into the town. A portion of the old wall is seen on the right, and another of the old round watch-towers on the left. Formerly, of course, the two were connected together before the street was made. Behind the tower is the Paul Hotel. An enterprising person, named Achtermann, has thrown the old tower into the hotel.

In the market-place stands the principal hotel of Goslar—the Kaiserworth. This building dates from 1492, and in the days of Goslar's prosperity was the guild-house of the tailors, or cloth merchants.

Between the windows are life-size wooden statues of German emperors—taking them from the left to right—Henry I., Otto I., Henry II., Konrad II., Henry III., Henry IV., Henry V., and Lothair II. of Saxony. In the arched arcade tables were set, and we sometimes had our meals there.

Altogether, it is a very quaint hotel in which to stay. In front of the hotel is a large iron fountain, dating from the 13th century. It is surmounted by the eagle of Goslar.

We got a very good idea of the market-place from an upper window. Prominently in the foreground we see the 13th century fountain, with its two large iron basins. The fountain is, no doubt, the work of the Goslar foundry of 600 years ago. When a fire occurred it was only necessary to strike the rim of the lower iron basin and it resounded like a huge gong, the alarm from which could be heard all over the town.

Standing in the arcade, at the entrance of the Kaiserworth Hotel, we got a view of the Goslar Rathhaus. It is a picturesque Gothic building of the 15th century, and, like our hotel, it has an arcade beneath.

Attached to the wall is a post-office letter-box, in which I posted my letters home. It is somewhat different to those in this country. These German boxes project from the wall, and when the postman makes a collection he attaches his bag underneath, opens a sort of trap-door, and the letters fall into the bag.

The Rammelsberg mine, as I have already mentioned, near this spot, was worked nearly 1,000 years ago by the Franks, who built themselves a church—Peter-Paul's Kirche. Now, the upper part of Goslar was called after the Franks, Frankenberg, and their church Frankenger Kirche.

As I was photographing this church a man, who was looking on, made up his mind that I was in the pictorial postcard line of business. When I had taken my photograph he wanted to know the lowest figure at which I would supply him with 500 postcards with the view—from which I supposed that he was a stationer of enterprise.

I hope you won't think that I was deficient in this respect,

for I didn't trade, and had the greatest difficulty to persuade him that I was an amateur. He seemed to think that the idea of anybody going about and taking photographs, without being paid for it, was quite too absurd!

There is here, at Goslar, the oldest secular imperial building in Germany—the Kaiserhaus.

This Kaiserhaus, 800 years old, is very interesting, because it is the only one of the kind existing. Other imperial palaces of a similar age are more or less in ruins, but this Kaiserhaus has been carefully preserved and restored. In the 200 years,



IN THE OKERTHAL.

between 1050 and 1253, ten or eleven German emperors resided in this Kaiserhaus, one after another, and 23 state gatherings were held in it.

Not very far away from the Kaiserhaus I took another photograph. It has nothing to do with Kaisers or matters imperial.

It was simply navvies at work. Navvies, women navvies, excavating for the foundations of a new house. These women were at work with the pickaxe, the spade, and the wheelbarrow.

It is work which we expect men to do in this country, but you see different views obtain at Goslar.

OKERTHAL.

We now made the acquaintance of our first Harz river—the Oker—and proceeded up the wild and romantic Okerthal, or valley of the Oker. The sides of the valley consist of granite rocks, which are split up into all kinds of rugged and fantastic forms, in which the Harz people see strange resemblances, and to which they have given many strange names, such as the “goat’s back,” the “sleeping lion,” and so forth.

“If Lombardy offers the finest example of a system of irrigation,” says a writer (Reclus), “the Harz presents us with an instance of the thorough utilisation of water as a motive power,



VIEW OF HARZBURG FROM THE BURGBERG.

not a drop of the force gratuitously furnished by nature being allowed to run to waste.” Well, here we found a case in point. An aqueduct carries off nearly all the water of the river to operate sawmills lower down.

ROMKER.

Continuing our way up the Okerthal, and having ascended about 1,000 feet above Brunswick and the plain, we came to the Romker Waterfall. The water splashes down some 210 feet.

This Romker fall is a rather favourite picnic resort, so about ten yards immediately opposite the fall an inn-restaurant has been erected, where all the world and his wife sit at little tables

swallowing German beer and gazing at the falls. But this is so everywhere in Germany—a beautiful view and the beer glasses always go hand in hand.

HARZBURG.

We now mounted up, right over the top of the Romker fall, and a journey of some seven or eight miles brought us to the town of Harzburg. Over-shadowing the town is the mountain, the Burgberg, *i.e.*, the fortress, or castle mountain, so-called because in the eleventh century the Emperor Henry IV. built his Harz-burg, or Harz-castle, on the summit. That castle is now gone.

The Burgberg is clothed with a dense mass of dark pine forest. According to the legend: When the autumn storms rage through the forest, the wild hunter, Haeckelberg, attended by his follower, Tutursel (a cursed nun, who became a giant owl), rides on to the summit on a black horse, snorting sparks, and with loud hallo and whip cracking, plunges on away to the Thuringian Forest (Cobourg-Gotha). We had now got into the district of weird and romantic legend.

We ascended the Burgberg, from which elevation we obtained a good view of the town.

Harzburg has two saline springs, strongly impregnated with soda and magnesia. These have given the place the name of Bad Harzburg. There are numerous large and excellent hotels for the accommodation of visitors who come to the baths. There is a pleasant, shady promenade, called “Unter den Eichen”—“Under the Oaks”—where the band plays, and we encountered an assemblage of smart costumes.

Opposite the Harzburg Railway Station is a fine memorial monument to the soldiers who fell in the Franco-German war of 1870. It bears the following inscription.—

“Den Todten zur Ehre.
Der Jugend zur Lehre.
Dem Feind ein Bild.
Von Deutschland's Wehre !”

TRANSLATION.

To the honour of the dead.
To teach the young.
A picture to the enemy of the bulwark,
or defence, of Germany.

About two miles from Harzburg are situated the Radau Falls. The River Radau falls over a bank of rocks a height of about 80 feet—not quite so high as the Romker Fall. We are here in the country immortalised by Goethe's *Faust*, and I think this waterfall suggests Goethe's line—

“in eternal spray,
A down the cliffs the silvery fountains leap.”

These falls are a favourite walk or drive from Harzburg, and, of course, we find here the usual restaurant, little tables, and glasses of the light German beer.

It was late in the day when we visited the falls, and the companions of that evening walk back to Harzburg were the cows which came down from the mountain pastures beyond the falls; they formed a procession, perhaps a hundred of them, belonging to different owners. A boy walked in front and a man brought up the rear. The cows all had differently toned bells round their necks, making a pleasing concert as they moved. On arrival in the town, each cow turned off to its respective home, and I turned off to my hotel.



THE RADAU FALL, NEAR HARZBURG.

ILSENBURG.

Our journey now brought us to Ilsenburg, the Burg of the River Ilse. Here we found a Castle and Castle Church.

The Castle is believed to have been built in the 10th century by the Emperor Henry I. For a time it was converted into a Benedictine abbey. It is now the property of the Prince Stolberg-Wernigerode.

The place and river were named after the luckless Princess Ilse. This is the legend concerning her:—

Princess Ilse was the beautiful daughter of old King Ilsung. One day there came this way a knight-errant named Rolf,

handsome as a young god. He saw and loved the Princess Ilse, and she ardently returned his love.

Now, below the castle dwelt an old enchantress, whose hateful daughter, Trute, desired the handsome knight for a husband, so the enchantress cast her spells about him, and kept him fast bound for Trute. After repeated efforts Rolf tore himself free, and fled to the Princess Ilse. Old King Ilseung then made him his son-in-law.

This so enraged Trute and her witch-mother that, on the next Walpurgis Night, the witch by Satan's power caused a flood to pour down from the Brocken which engulfed the king's castle, and the king and the knight sank together. Ever since then the Princess Ilse wanders about looking for her drowned lover.

Whoever surprises the Princess Ilse, when she is bathing in the River Ilse, named after her, is changed into a gnarled old fir-tree; and, strange to say, there are a large number of such trees in the Ilsethal.

But he who brings the right nosegay of flowers on the mid-night of May-day to the Ilsenstein, frees the Princess and becomes immensely rich.

The Princess was only saved from drowning in that terrible flood because she was at the top of her mountain, the Ilsenstein. So runs the legend.

ILSENSTEIN.

The Ilsenstein is a great granite mass, which rises 1,450 feet above the sea, and we found that we kept ascending higher. In the Walpurgis Night Scene in Faust, one witch is made to ask another—

“Which way did'st thou come?”

Reply—

“O'er Ilsenstein,
There I peep'd in an owl's nest.
With her broad eye she gazed in mine.”

ILSETHAL.

We now entered the Ilsethal—valley of the Ilse. By some travellers the forest and rock groupings of the Ilsethal are accounted the most beautiful of the whole Harz. At Ilseburg close by, there are iron foundries. We can, therefore, in this valley fully comprehend the national Harz motto—

“Es grüne die Tanne, es wachse das Erz!
Gott schenke uns allen ein fröhliches Herz!”

Which, being interpreted, is—

“The fir-tree grows green here; the ore is found here;
God present us all with a joyful heart!”

One of the favourite ascents of the Brocken is by this Ilsethal. We ascended the top of the Brocken by following the path along the bank of the Ilse.

We were now in the centre of the Faust country. Let me quote a few lines as translated by the late Anna Swanwick:—

Mephistopheles is conducting Faust to the Walpurgis Night gathering of the witches on the Brocken. Faust, not yet *blasé*, is fresh and active, but Mephistopheles, feeling the fatigue of climbing, exclaims—

MEPHISTO.—“A broom-stick dost thou not at least desire?
The roughest he-goat fain would I bestride,
By this road from our goal we're still far wide.”

FAUST—“While fresh upon my legs, so long I naught require
Except this knotty staff. Beside
What boots it to abridge a pleasant way?
Along the labyrinth of these vales to creep,
Thence scale the rocks whence in eternal spray,
Adown the cliffs the silvery fountains leap:
Such is the joy that seasons paths like these!
Spring weaves already in the birchen trees;
E'en the late pine-grove feels her quickening powers,
Should she not work within these limbs of ours?”

MEPHISTO.—“Nought of this genial influence do I know!
Within me all is wintry. Frost and snow
I should prefer my dismal path to bound.” &c., &c.

We passed a little bit of the Ilse known as the “Forellen Wasserfall”—“Trout Waterfall”—from which, I suppose, that it is a trout leap.

We now completed our climb of 3,743 feet above sea level, and emerged upon the dome-like summit of the Brocken.

We found on the summit an observatory and hotel. They are buildings of considerable strength, for they have to withstand many a storm and many a blast. We were here at the very highest point of the Harz Mountains, above the level of tree vegetation, and higher by 500 feet than our Ben Lomond, 200 feet higher than our Snowdon, but not quite so high as Ben Nevis. This is the spot associated with Faust and other poetic flights of fancy. No doubt the fact of the Brocken being the highest mountain of Central Germany has given it a halo of so much mystery and romance; but I think the very matter-of-fact-looking hotel destroys any web of romance that our minds might otherwise be disposed to weave around the summit of the Brocken.

On the summit, close by the hotel, is an oddly-shaped mass of granite, looking almost as if it had been piled together by human agency. It is known as the “Hexen Altar,”—“Witches' Altar”—on which, on Walpurgis Night, the witches and their companions were believed to make their obscene offerings to their master, the devil.

We found here some German tourists gazing at the view.

They were glad of their rugs as a protection from the biting wind which played round that mountain top.

Adjoining the Witches' Altar is another mass of granite rock called the "Teufelskanzel," or "Devil's Pulpit," from which, on the Walpurgis Night, the devil was believed to address his ill-favoured crew of witches and hobgoblins.

The gentleman in this photograph is not what the Scotchman called "the muckle-horned clootie himsel," otherwise the Prince of Darkness, the devil, standing on his own pulpit. Please do not make any such mistake.

The gentleman is an inoffensive English tourist, Baedeker in hand, gazing at the wide-reaching view from this mountain top.



TEUFELS KANZEL, SUMMIT OF THE BROCKEN.

Perhaps it was a little mischievous in me to photograph him unawares while occupying the Devil's Pulpit.

As the Brocken is the loftiest obstacle between Central Germany and the sea, it arrests the cold moist winds which drive over the great German plain, and the moisture is precipitated on the mountain top in the form of cloud, mist, and rain. A cloud comes down, and in a few minutes envelopes everything in a thick mist.

The real phenomenon of the "Spectre of the Brocken" is rarely seen. It occurs in this way: When the cloud of mist lifts from the summit, and hangs over the side of the mountain.

farthest away from the sun, the sun's rays cast an enlarged image of the mountain top and any person or object who may be there upon the wall of mist, just as a lantern throws an enlarged image of a photograph upon the screen; but, as the wall of mist is ever varying in form and density, the effect is transient, and consequently more weird and spectral.

The cloud soon dissipated, and we were able to obtain views from the Devil's Pulpit of other mountain tops at a lower level than ourselves on the Brocken; indeed, the Brocken is usually considered the nucleus of the Harz. Between those mountain ridges are deep valleys, with rivers flowing through their hollows.

Many tourists stay the night at the hotel to see the sunset and sunrise over these Harz mountains and valleys.

Over these mountains and valleys it was that the witches were supposed to fly on their broomsticks to keep their unhallowed festival here, on the Brocken, on Walpurgis Night. I have referred to Walpurgis Night several times. Do you know what it was? May I explain?

Saint Walpurga was the sister of Boniface, the Apostle of the Germans. Her festival falls on the 1st of May, and the festival-day of St. Walpurga was as important a day in Germany as Lady-day in England, for the dating of leases, contracts, and so forth.

According to the popular German superstition, a great witch festival was always held on the Brocken on the eve of St. Walpurga. Hence the name, Walpurgis Night. This superstition is supposed to have originated in the idolatrous rites of the Pagans, which, when they were forcibly converted to Christianity, they conducted secretly in remote places. These idolatrous rites were magnified into supernatural orgies.

We ascended the Brocken by the Ilsethal, away on our left. We now descended by the Steinerne Renne Valley.

As we descend through the dark pine forest and down the valley, I quote here some of the late Anna Swanwick's translation of the witches' chorus from Goethe's "*Faust*," and you will then, perhaps, better understand the idea of the Witches' Walpurgis Night revels:—

"Now to the Brocken the witches hie,
The stubble is yellow, the corn is green;
Thither the gathering legions fly,
And sitting aloft is Sir Urian seen:
O'er stick and o'er stone they go whirling along
Witches and he-goats a motley throng.

The way is broad, the way is long;
What mad pursuit! What tumult wild!
Scratches the besom and sticks the prong:
Crushed is the mother and stifled the child.

Broom and pitchfork, goat and prong,
 Mounted on these we whirl along ;
 Who vainly strives to climb to-night,
 Is evermore a luckless wight !

Salve gives the witches strength to rise ;
 A rag for a sail does well enough ;
 A goodly ship is every trough ;
 To-night who flies not, never flies.

And when the topmost peak we round
 Then alight ye on the ground ;
 The heath's wide regions cover ye
 With your mad swarms of witchery !

The wind is hushed, the stars grow pale,
 The pensive moon her light doth veil ;
 And whirling on, the magic choir
 Sputter forth sparks of drizzling fire."

Then, contemplating the assembling witches, Mephistopheles
 soliloquises—

"They crowd and jostle, whirl and flutter !
 They whisper, babble, twirl, and splutter !
 They glimmer, sparkle, stink, and flare—
 A true witch element ! Beware !"

Then, Mephistopheles again, in another place—

"See how tree on tree with haste
 Rush amain the granite blocks,
 Make obeisance as they go !
 Hark ! the grim long snouted rocks,
 How they snort and how they blow !
 Brook and brooklet hurrying flow
 Through the turf and stones along.
 Hark the rustling ! Hark the song !"

And now we have him in somewhat gentler mood—

"To-whit ! To-whoo ! It sounds more near ;
 Pewit and owl and jay appear,
 All awake, around, above !
 Paunchy salamanders, too,
 Crawl, long-limbed, the bushes through !
 And, like snakes, the roots of trees
 Coil themselves from rock and sand,
 Stretching many a wondrous band
 Us to frighten, us to seize ;
 From rude knots with life embued,
 Polyfangs abroad they spread,
 To snare the wanderer ! 'Neath our tread
 Mice in myriads thousand-hued
 Through the heath and through the moss !
 And the fire-flies glittering throng,
 Wildering escort whirls along,
 Here and there our path across."

And now you have a description of the witches' orchestra, in much lighter vein—

"Flies and midges all unite
With frog and chirping cricket,
Our orchestra throughout the night
Resounding in the thicket!
Yonder doth the bagpipe come!
Its sack an airy bubble,
Schnick, schnick, schnack, with nasal hum,
Its notes it doth redouble."

Next, we have a description of an embryo spirit, which joins in the frolic—

"Spider's foot and midge's wing
A toad in form and feature;
Together verses it can string
Though scarce a living creature.
With proper folks when we appear
No one can then surpass us!
Keep close, wide is the Blocksberg here
As Germany's Parnassus."

Blocksberg is another German name for the Brocken.

"Drifting cloud and misty wreathes
Are filled with light elysian;
O'er reed and leaf the zephyr breathes,
So fades the fairy vision!"

And here we have Mephistopheles again, this time in grim sardonic mood, presumably going home from the revels—

"Up rocky stairs and steep must I to-day
Through ancient oaks' gnarled roots make toilsome way.
Upon my Hartz the piny atmosphere
Savours of pitch, and that to me is dear,
'Tis next to brim-stone"

IN THE STEINERNE RENNE VALLEY, NEAR WERNIGERODE.

We took several photographs of the Steinerne Renne Valley. The mountain path widened out to a broad road. The pine forests through which we passed afford lairs for deer and wild-boar, although the latter is become scarce. The forests, too, afford a large industry to the wood-cutters and charcoal burners.

WERNIGERODE.

A walk of about two miles brought us to the quaint old Harz town of Wernigerode. Not so historic a place as imperial Goslar, yet, like Goslar, Wernigerode has an ancient gateway, the Western-thor, by which we entered the town, and a strange old-world appearance this gateway has in the midst of the modern houses which have sprung up around it. No doubt the lofty tower was one of the watch-towers of the ancient walls. On passing through this old gateway we came to the

most interesting building in Wernigerode, the old Rathhaus, or Town Hall.

This Rathhaus was built in the year 1500, and, with its two lofty spires, has a very antique appearance. Over the door is the quaint motto—

“Einer achts
Der Andre verlacht's!
Der Dritte betracht's
Was macht's?”

This means: “One esteems it, the other laughs at it, the third considers it, what does it matter?”



IN THE STEINERNE RENNE VALLEY, NEAR WERNIGERODE.

It seems as if the old worthies of Wernigerode, who built this Rathhaus 400 years ago, said stoutly to the world at large: “It doesn't matter what other folks say or think, *we* stick to our own independent line.”

The Rathhaus stands in the Market Square, which is usually rather busy.

In the market-place is a house in which Goethe lived during the winter of 1777, when he compiled the material for his tragedy of “Faust,” and from which I have taken somewhat copious extracts. Goethe was up on the Brocken in 1777, 1783, and 1784.

The street which passes in front of the Rathaus is the Breite Strasse, or Broad Street; and in that street are two very quaint old houses. One of them is the Gerlitzsche Haus, as it is called. The Gerlitzsche Haus now-a-days appears to be a grocer's shop. It has a high-pitched, red-tiled roof, and the entire front of the house is covered with curious old wooden carving, the relief of which is wonderfully sharp and distinct.

A few doors further on, at No. 78, in this Breite Strasse, is the other quaint old house, the Faulbaumsche Haus. Faulbaumsche means "rotten tree." Faulbaumsche Haus then means "Rotten-tree House." We could not ascertain the



GERLITZSCHE HAUS, WERNIGERODE.

significance of this title. That the timber with which the house was built was not rotten is proved by its antiquity.

On a hill called the Agnesberg, overlooking the town, stands the schloss of the Prince of Stolberg-Wernigerode. This schloss, or castle, is, perhaps, better and more picturesquely situated than any of the other Harz castles. There has been a Count of Wernigerode since 1121, nearly 800 years.

At this point we were standing some 1,200 feet above the sea, and had a fine view over the red-tiled roofs of Wernigerode, now a bustling town of 10,000 inhabitants, across to the distant mountains. The Brocken lies away beyond the first ridge, and rather to the left.

The rack-railway to the summit of the Brocken, which commences here at Wernigerode, now brings to the town many tourists, who in this easy manner make the ascent of the mountain.

Wernigerode has a delightful park-like suburb, called the Christiannenthal, which is a scene of sylvan beauty. A house at the water's edge is the forester's, or gamekeeper's, house. Here, as everywhere else in the Harz, we saw the distant mountains covered with the thick pine forest.

HALBERSTADT.

We now left Wernigerode, and travelled some ten or twelve miles down the same valley, that of the Holzeume, arriving at Halberstadt, a large busy city of 41,000 inhabitants. It is also a very ancient city, for it is said that a bishop's see was founded here by Charlemagne as far back as the year 804. In the year 989, Halberstadt was granted "*vekehrsrecht*," *i.e.*, the right to carry on commerce.

The principal street of Halberstadt is the "*Breite Weg*," or "*Broad Way*."

At the end of the street are the towers of the Gothic Church of St. Martin, which dates from 1350. These St. Martin towers have 120 steps, and we carried the camera up these steps to obtain a view of the cathedral, which is so closely surrounded by buildings that you can only see it by getting high up.

At the lower end of the same street, *Breite Weg*, we saw a group of women in their showy Saxon costume.

The Rathhaus, or Town Hall, is a Gothic building, the earliest portions of which date from the 14th century. The lower windows at the corner are those of the guardroom, always full of soldiers. There is a sentry-box, and the German soldier on sentry-go. He halted at the corner with his rifle at the slope, and stared hard at the camera and me, but was apparently satisfied. There were eight or nine rifles leaning against their rests, and at a moment's notice the guard could be out of the guardroom and standing to their arms.

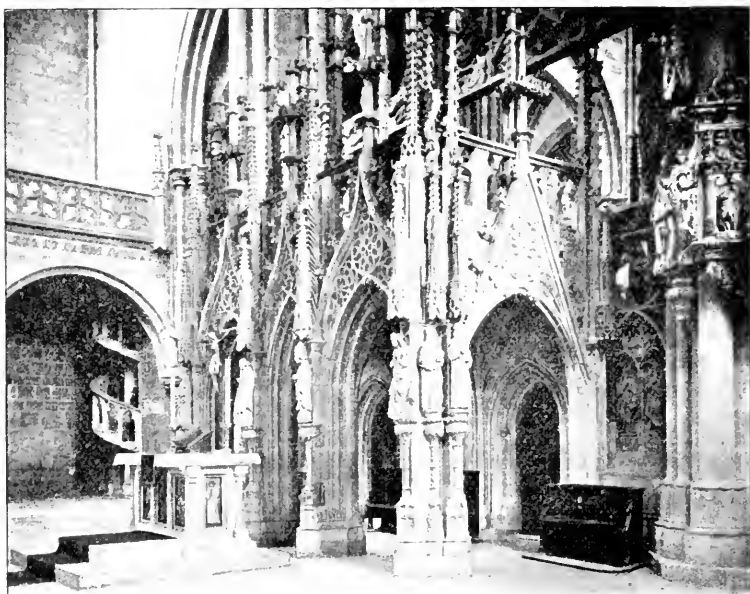
The chief interest here, however, is a colossal stone figure at the corner of the Rathhaus. It is what is called a "*Roland*." The Roland carries in his left hand a shield with the imperial eagle, and in his right hand a drawn sword. The Roland typifies free commerce, civil liberty, and criminal jurisdiction. There is a Roland-säule, Roland-column, in many North German towns; but this Halberstadt Roland, which is upwards of 500 years old, and that at Bremen, are the finest in Germany.

We climbed up into the tower of St. Martin's Church to see the cathedral over the intervening house-tops. A cathedral was consecrated here in 859, but both it and its successor were

destroyed by fire. This one is the fourth cathedral erected here. It was commenced in 1235, but was not completed until 200 years later. It is in the form of a Latin cross, and was dedicated to St. Stephen.

We got a good idea of the great window of the south transept from the tower of St. Martin, and made out the roof of the cloisters which surround the garden, and which we visited presently.

A building with a high-pitched roof we found to be the old refectory, and the basement below was rented by a wine merchant.



SCREEN OF HIGH CHOIR, HALBERSTADT CATHEDRAL.

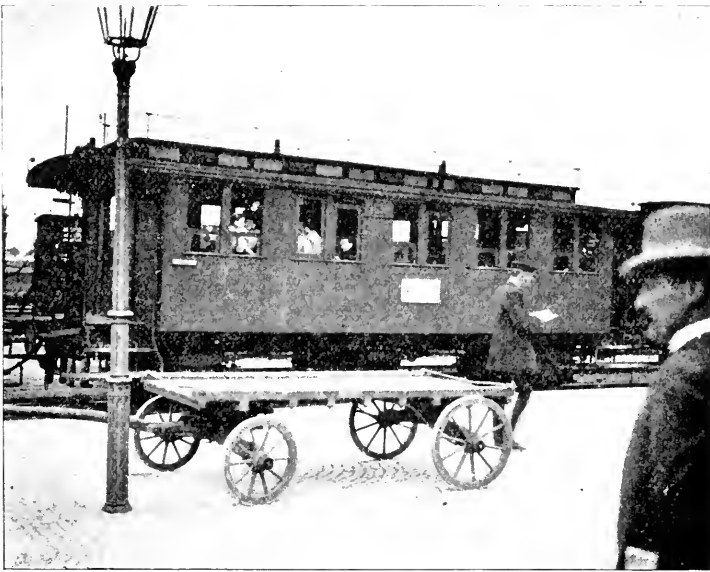
We entered the cathedral by the west portal under the lofty towers. Halberstadt Cathedral has been called the "Architectural Pearl of Northern Germany," and certainly it is very beautiful.

A curious feature is the wide and lofty pointed arch by which we entered the nave. This west end of the nave was erected in the latter part of the 13th century, the middle part of the 14th century, and the transept end of the nave in the 15th century. The font is of Rübeland marble, and was the gift of Bishop Gardulph, in 1195.

There are beautiful canopied statues on each pillar. That on the first pillar on the north side is Martin Luther, and that on the south side, opposite to him, is his friend Melanchthon.

There is a magnificent screen, which divides the high choir from the nave.

The high choir and side aisles were finished in the year 1490. The screen is of late Gothic architecture, and is very beautiful work. There are slender twisted columns supporting the canopied statues of Madonna and Child, saints, pope, and so forth. At the south-west corner of the screen is the "Kannebergsche Epitaphium," an elaborate piece of Renais-



FOURTH CLASS RAILWAY CARRIAGE, HALBERSTADT STATION.

sance work in alabaster. It is a monument to one Von Kanneberg, who is represented in a kneeling attitude.

Another remarkable feature of this Halberstadt Cathedral is, that at the east end of the cloisters there is, what we may term, for want of a better description, an inner cloister court or hall. It has a row of arches like an ordinary cloister, and these arches open into the outside or usual cloister. The inner cloister is the receptacle for statues and carvings, which, no doubt, were originally in the cathedral.

The outer cloister looks out on the right into the garden, which we looked down upon from the tower of St. Martin's Church.

As we were leaving Halberstadt I photographed a train, or rather a carriage of a train, which stood on the opposite side of our platform at the station.

The interest of it is that it is a fourth-class carriage. It has a door at each end, and a passage down the centre. One end is reserved for "Frauen"—ladies—and, presumably, no smoking is allowed there. It is everywhere else! The board tells us that it is part of a train running from Magdeburg to Thale—a town which we visited presently; and here you see the train is made up of first, second, third, and fourth class carriages.

BLANKENBURG.

Our journey, however, took us to the Harz town of Blankenburg, where the chief interest is a broken chain of rocks called Teufelsmauer, *i.e.*, "The Devil's Wall." The slopes of the Teufelsmauer are covered with trees. The ridge of rocks extends like a high wall, or rampart, for nearly three miles without a break, and then reappears for shorter stretches for a distance of about fifteen miles.

The highest point of the Teufelsmauer are two lofty isolated rocks. The one on the left is called Gross-mutter, and that on the right Gross-vater, *i.e.*, "Grandmother" and "Grandfather." The Gross-vater is sometimes also called Brockenblick, because from the top of the rock it is sometimes possible, when there is no cloud, to get a distant view of the Brocken some fifteen miles away as the crow flies.

TEUFELSMÄUER.

We now entered the footpath which runs along the top of the "Teufelsmauer." The footpath is somewhat rough, but it gives you a good idea of the rugged masses of rock which compose the "Devil's Wall," and between which the footpath passes. The geological formation is described by a German authority as "square sandstone of chalk formation."

Following the path for some little distance we came to a remarkable mass of rock. The recurrence of masses or peaks of rock give the Teufelsmauer a jagged appearance, which has been compared to the teeth of a saw. Probably it was the jagged or saw-tooth like appearance which earned this ridge of rock the name Teufelsmauer—"Devil's Wall."

The citizens of Blankenburg took advantage of the conspicuous position of this rock to place here a memorial tablet to one Löbbicke, who was Burgomaster from 1850 to 1859, and who was much venerated by the Blankenburgers.

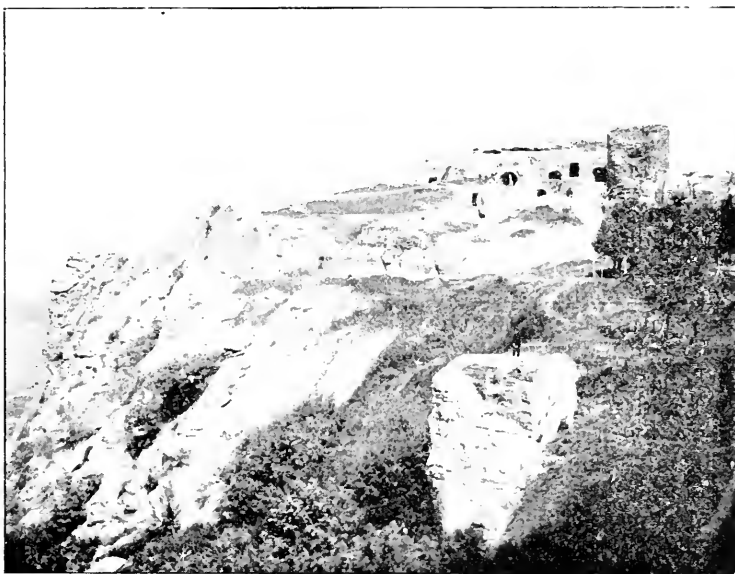
REGENSTEINBURG.

Near this spot are the ruins of the Regenstein, one of the most remarkable natural fortifications of the early Middle Ages.

As far back as the year 919, nearly 1,000 years ago, the Emperor Henry the Fowler placed a castle upon this cliff, which rises abruptly for 240 feet. Excavated in the solid rock are many chambers, which served as dungeons.

The Counts of Regenstein were prominent in all the feuds of the Middle Ages, and became Raub-Ritter—robber knights—regular freebooters.

We can imagine them, secure in their wellnigh impregnable fortress, terrorising all the country round. They had perpetual struggles with the Bishop of Halberstadt, the city we had just left; also with the town of Quedlinburg. Indeed, one of these



THE REGENSTEINBURG.

Counts of Regenstein was brought a prisoner in 1336 to Quedlinburg, and kept there for 18 months in a wooden cage.

The Castle of Regenstein was dismantled by Frederick the Great, and there is little left of its former glory.

VIKTORSHÖE.

As we passed on our way, we stayed for a moment on the Viktorshöhe, one of the lower mountain tops, covered over with dense pine forest. Among the trees we found a remarkable group of granite boulders. It is called "Teufelsmühle, the "Devil's Mill," the idea being, I suppose, that the devil and his imps used these boulders for grinding their grain.

QUEDLINBURG.

Our journey now brought us to Quedlinburg, a quiet Harz town of 21,000 inhabitants.

The chief industry of Quedlinburg is, perhaps, market gardening. We noticed fields of gay-coloured annuals, and very striking to the eye were these large brilliant patches of pink, and blue, and white!

Flower and vegetable seeds are sent from here to all parts of Europe. Quedlinburg supplies many countries with seeds for the beetroot used in sugar-making.

Quedlinburg is a very old town, having been founded in the 10th century by Henry the Fowler. The roofs are all red tiles, and the large number of towers were not all church towers, some of them being watch-towers, the remains of the old town walls.

The most prominent feature of Quedlinburg is the Schloss and Schloss Kirche—the Castle and Castle Church. They adjoin each other, and are built on the top of a high commanding rock. The Schloss is the property of the German Emperor. It was anciently the residence of the Abbesses of the Secular and Independent Order of Quedlinburg, an order which was founded by Matilda, wife of Henry the Fowler, the king who founded the town. This order of nuns attained great prosperity in the Middle Ages, but dwindled away after the Reformation in the 16th century, and was finally suppressed at the commencement of this century. The church has two lofty towers.

The Abbesses of Quedlinburg were generally members of royal and noble families, and were Princesses of the Empire. The tombs of several of the princess abbesses occupy the centre of the nave.

This Schloss Kirche is a curious basilica, nearly 800 years old. The stairs leading to the choir and high altar are of great height. Through the door behind the lower altar is the crypt, the most ancient part of the church.

The nave appears at first to be very plain, and admittedly it is in the Romanesque style of architecture in severe form, but the details exhibit a rich development of fantastic form, especially so are the capitals of pillars on the north side of the nave.

The crypt was, no doubt, the original church. It was founded in the 10th century, and will soon therefore be a thousand years old. In this crypt is the tomb of Henry I., surnamed the Fowler, who died in the year 936, and who founded this town of Quedlinburg and many other towns in this part of Germany, from which he has sometimes been called the “the great town founding king.”

In this crypt his queen, Matilda, wept and mourned the loss of her consort. It was she who founded the order of nuns to which I have just referred, and here she too sleeps.

For wellnigh a thousand years have that royal pair been sleeping their long sleep in this beautiful crypt, only to wake when thrones and kingdoms are no more, and the graves give up their dead.

We now descended into the town of Quedlinburg, and stood in the market-place.

A large building, grown all over with ivy, is the Rathhaus, or Town Hall.

Among the ivy on the left hand side of the Rathhaus we made out the stone figure of the Roland. You will remember that I told you all about these Roland statues when we were at Halberstadt. Like that one, this Quedlinburg Roland holds the shield and drawn sword. He is about 9 feet high, and is considerably smaller than the Halberstadt Roland.

Near the Railway Station at Quedlinburg is a monument, erected to the memory of the soldiers from this district of Germany who fell in the Franco-German war of 1870. It is an equestrian statue in bronze. We thought it a fine, spirited work of art.

THALE, BODE RIVER, AND ENTRANCE TO BODETHAL.

Quedlinburg is situated on the River Bode. The Bode is the finest of the Harz rivers, and the valley of the Bode—the Bodelthal—is generally considered the finest scenery of the whole Harz.

We ascended the Bode for a considerable distance. About five miles above Quedlinburg we arrived at the manufacturing town of Thale. This is the town to which that train with the fourth-class carriage was coming.

There are here, at Thale, ironworks, machine works, cement works, a factory for enamelled goods, and a large brewery. We see by the smoke from the factory chimneys that those works are in full swing.

The River Bode here is of great width. It comes down through a deep valley between two mountains, whose sides present steep, precipitous cliffs to the river. The mountain on the north is called the Rosstrappe; and that on the south, the higher of the two, is called Hexentanzplatz, which means “dancing-place of the witches,” for on occasion the witches were believed to hold their midnight revels on their lofty summits.

BODETHAL.

We ascended to the Hexentanzplatz. On our climb up we paused for breath, for the way is rather steep, at some irregular granite rocks, called the Bismarck Rocks.

The great German Chancellor visited this spot a few years

before he died and these rocks were then named Bismarck Rocks after him.

Bearing in mind the relative positions of the Hexentanzplatz and the Rosstrappe—lofty mountains on either side of the valley of the broad River Bode—we wonder at the story of a maiden who is said to have jumped on horseback from the Hexentanzplatz to the Rosstrappe, right across the intervening Bodethal.

The legend is as follows:—

In olden days, giants and dwarfs were believed to live on the Harz Mountains.



BISMARCK ROCKS, HEXENTANZPLATZ.

The Prince of the giants had a daughter named Brunhilde.

The wild King of Bohemia, Bodo by name, coming hither, fell in love with Brunhilde. She did not return his passion, and fled from the impetuous Bodo. In her flight, her horse suddenly drew back on the "witches' dancing-place," affrighted at the yawning chasm before them.

Then this child of an intrepid race set her horse for a mighty jump, and with a wondrous bound the gallant steed bore the Princess Brunhilde in safety across to the opposite rock, where the imprint of the horse's hoof is still pointed out. From this the rock received the name of "Rosstrappe"—"Horse's-hoof-print."

The pursuing Bohemian King, Bodo, also attempted the leap, but he fell into the chasm, and the river, deep down below, was thenceforth named Bode after him.

The Hexentanzplatz rises to a height of 1,590 feet. The Rosstrappe is 210 feet lower. We found this Bodethal always filled with a blue haze, which made distant photography difficult.

SCHURRE AND ROSSTRAPPE.

From a point about half a mile beyond the Hexentanzplatz you may sometimes get a clear view of the Rosstrappe. Not having the Princess Brunhilde's wonderful horse to leap across the valley with us, we got down to the bottom of the valley on shanks' pony, crossed the Bode River, and climbed toilsomly up to the Rosstrappe by a zig-zag path up the face of the cliff called the Schurre.

Arriving at the top of the Rosstrappe, we saw the zig-zag path of the Schurre by which we had ascended from the Hexentanzplatz on the other side of the valley.

The other day the German military tried some experiments with motor-cars as transport waggons, etc. Heavily laden baggage and passenger waggons were propelled by self-contained motors from Quedlinburg, through Thale, over the Hexentanzplatz, through Tresburg and Blankenburg, right over the Brocken, and so on to Magdeburg. It was a long, heavy journey, but the trials are reported to have been very successful. Motor-cars have the advantage that they can be largely protected by armour, and therefore are not so vulnerable to rifle bullets as horses. I think our M.P.'s and military authorities may very well make a mental memorandum of these German experiments.

We stood on the mythical horse-hoof mark of Brunhilde's famous horse—the spot where it alighted on the Rosstrappe. Deep down below is the Bode, and opposite is the Hexentanzplatz from which the horse and rider jumped. Truly a most marvellous leap, and one wonders how the legend originated!

There is a remarkable echo here when a pistol is fired. The report is reverberated seven or eight times between the walls of rock on either side of the valley.

We now descended to the river level, and ascend the stream along the river banks.

Starting from Thule one afternoon, we found the path into the Bodethal occupied by a little waggon and pair of dogs. They are waiting for their master, who is inside a hotel called "Wald Kater"—the "Wild Cat." This wall is part of the "Wald Kater."

Dogs are much used here, as in other parts of the Continent, for hauling goods about, and the willing animals not infrequently

seem to be staggering along with a heavier load than they can properly manage.

Opposite the Wald Kater Hotel is a footbridge over the Bode.

We all agreed that it was a very picturesque scene, and we seemed to lose all idea at this spot that the Rosstrappe was frowning high up over us on the right.

We now passed on to the footbridge, and, looking up the Bode, we got a much better idea of the almost perpendicular walls of rock which form the sides of the Bodethal. These rocks are almost entirely granite.

Now, when the Princess Brunhilde took this marvellous leap across the valley, her crown slipped off her head and fell into this River Bode, where it is said to be guarded by a black dog with blazing eyes. From this part of the story we have Kronensumpf—Crown Pool.

I believe this part of the Bode to be the Kronensumpf, because on the bank of the river is erected the Kronen-tempel—"Crown Temple"—a kind of large summer-house, in shape like a royal crown, elevated on pillars which span the path. The group of rocks up above are said to resemble some old Ritterburg, or Knight's Castle.

A variation of the legend has it that the wondrous leap was made by the Walküre Sigdrifa; but the Princess Brunhilde is the more generally accepted version.

We left the Kronen-tempel and still ascended the Bode. The footpath closely hugs the rocky side of the Rosstrappe.

Still ascending the stream, we came to another foot-bridge, which leads to a little inn or restaurant, called Königsröhe, the "King's Rest," and very useful we found it, for we were twice caught in a thunderstorm here and had to take refuge in the Königsröhe. Very weird and awe-inspiring is a thunderstorm in this valley and down these mountain sides. On the second occasion we passed along the path immediately after the storm, returning in about half an hour. Between our going and returning a huge boulder had rolled down the mountain, snapped a large tree off short, and torn up the path over which we had walked so short a time before. The heavy thunderstorm had, no doubt, detached the boulder from its hold up above, and down it came, tons of it, with resistless force. Had it happened as we were passing, this story would probably not have been told.

At this point the footpath is continued by means of a gang-way, as the Rosstrappe goes sheer down into the river. The zig-zag footpath of the Schurre goes up the face of the opposite mountain.

We now had a view looking down the gorge of the Bode, as we stood on the zig-zag path of the Schurre.

The height in the far distance is part of the Hexentanzplatz, which we had left behind us.

Down below in the valley is the River Bode, flowing on its way towards the towns of Thale and Quedlinburg, and to join the Elbe.

We saw, higher on the left, the path by which we had been ascending this valley.

Through the mass of foliage we saw that the river is much contracted. At this point the rocks on either side the river come so close together that the Bode is confined, or compressed, and becomes a swirling rapid or torrent. Just at this dangerous spot the river is crossed at great altitude by a bridge called the Teufelsbrücke, "the "Devil's Bridge." The very situation is sufficient explanation of the name.

We now passed on the Teufelsbrücke itself, and looked down on the rushing torrent below. The river here is called the Bodekessel, the "boiling kettle or cauldron" of the Bode. The walls of granite rock rise on either side to a height of 650 feet, and approach so closely together that they almost seem to shut in the whole valley.

The entire volume of the river passes through this narrow passage way, and from the restraint becomes a boiling, swirling, rapid of great depth, which draws down any object not securely fastened with irresistible force. Presently, these troubled waters settle down into the broad river flowing by those factories with the smoky chimneys at Thale.

Above the Bodekessel the scenery is of a far more pastoral character.

We now found ourselves at Treseburg, and that the lofty granite cliffs were absent, and in their place we had on the right bank of the river a field in which the haymakers were at work. The River Bode here is broad, but it has soon to squeeze itself through the Bodekessel which we had just left, and we could estimate what the force of that swirling rapid must be.

Asbestos is found at Treseburg, and those curious stones used in jewellery called "cats-eyes."

RÜBELAND.

We had now ascended the Bodethal for about 13 miles, and will only follow the valley one step farther, visiting the town of Rübeland, also on this same River Bode, and where again we found ironworks, and that great outcome of modern civilisation, the railway.

Perched high on a rock on the right bank of the river is the figure of a bear. It commemorates the last bear killed in this district, now upwards of a hundred years ago. Behind the rock is the entrance to a fine stalactite cavern.

We here photographed in the rain, an umbrella being held over the camera during the process.

HARZGERODE.

We now said good-bye to the Bodethal, and travelled a few miles southward to the ancient Harz town of Harzgerode.

The antique Rathhaus, or Town Hall, dates from the year 1639. It is, therefore, some 260 years old. The shield of arms over the door bears the date 1726.

Harzgerode is an antique town, for about the year 975 the Emperor Otto II. authorised a market, a mint, and a customs office to be established here.

Standing under a great tree we found two of the ancient fire-engines of Harzgerode. They are most primitive. A large cask is mounted on runners, like those of a sledge, and on an alarm it is dragged by main force to the scene of the fire. The water is then thrown on the flames by such means as come most readily to hand.

Harzgerode is in the Duchy of Anhalt.

The old Schloss was formerly the burg, or fortress of the Dukes of Anhalt, and very picturesque it is seen from this side of the town!

You have from this point of view a remarkable combination of ancient and modern. Among the trees is the old schloss of mediæval times, whilst a white building before it on the left, now emitting smoke, is the shed for the locomotive of the small branch railway of which Harzgerode is the terminus; while on the right is part of an ironworks, whose chief manufacture is the artistic metal articles known as "Harzer-andenken." Besides this, the inhabitants of Harzgerode are engaged in mining, lamp and cask making, and, of course, forestry and agriculture. Then, too, Harzgerode is the market town for the more fashionable resort of Alexisbad.

ALEXISBAD.

A walk of two miles from Harzgerode and the descent of a steep hill brought us into Alexisbad, and we had a view of Alexisbad from the top of that hill.

Harzgerode, which we had just left, is an ancient town, but this place Alexisbad is comparatively new. In the year 1810 the Duke Alexis, of Anhalt-Bernburg, built and laid out this place round a mineral spring on his property, and thus the place received its name, Alexisbad.

There is a Kur-haus, or Bath-house.

Several large ornamental buildings are hotels, and you may notice the little tables with white cloths for breakfasts and suppers (abend-essen) out in the open air, according to the continental fashion.

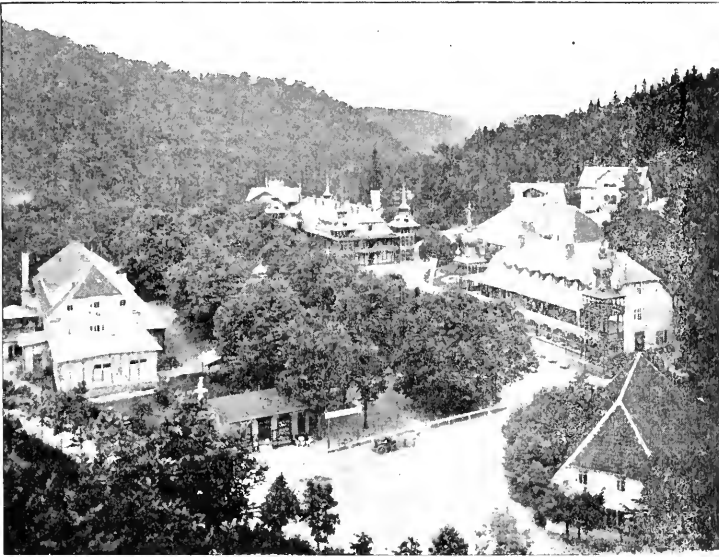
A large house beyond the hotels is the villa, or chalêt, of

the Duchess of Anhalt, an old lady of 88, and aunt to the Prince of Wales. I saw her driving in her carriage.

Between the hotels and the bathing-house is an avenue of trees, in which the visitors, after taking their bath, or drinking their waters, promenade about and listen to the band.

The Alexisbad spring is a strong chalybeate, containing sulphate of iron, Glauber salts, and Epsom salts. The water has an inky, bitter taste. Needless to say, I did not trouble it, but it nevertheless enjoys a high reputation in cases of anæmia and several other disorders.

Although I cannot speak from personal knowledge as to the efficacy of the Alexisbad waters, I can truly say this, that here



ALEXISBAD.

in Alexisbad I saw a young girl consume the largest glass of light German beer that it has ever been my lot to see raised to feminine lips—why, the glass was nearly big enough to put her head in, she could certainly have put both hands in at once—yet she managed that glass, and didn't waste a drop!

SELKETHAL.

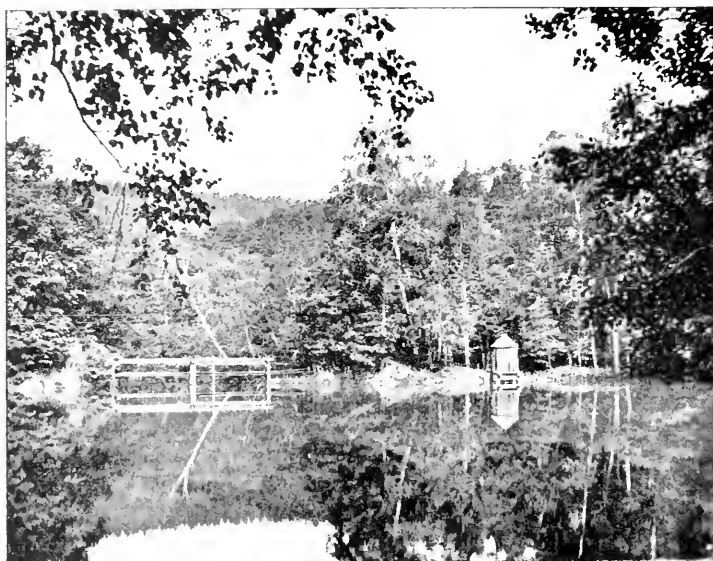
The River Selke flows through Alexisbad just behind the Kur-haus, and immediately under the hill from which we got our first view of the town. We now visited the Selkethal, the valley of the Selke.

The Selkethal is not so wild or impressive as the Bodethal or the Ilsethal, yet it is most picturesque.

A German writer, perhaps not unnaturally, goes further than this, and says that the Selkethal assumes the most idyllic character, water and woodland yielding the most charming pictures.

The Selkethal, like the other Harz valleys, has its legends. We quote only one :—

This valley was once haunted by a giantess. In one of her wanderings she sprang across the valley on to the opposite hill, leaving the marks of her feet on the spot where she alighted.



IN THE SELKETHAL.

The mountain was thenceforth called Mägdetrappe, *i.e.*, "Maiden's-foot-print."

The story bears a close resemblance to that of the Rosstrappe in the Bodethal, and one wonders how these legends originated.

MÄGDESPRUNG.

Below that mountain lies the town of Mägdesprung, *i.e.*, "Maiden's-spring," which town we now visited.

Mägdesprung consists to-day of iron-foundries, forges, and miners' cottages scattered along the banks of the Selke for

nearly two miles. Some 400 tons, and this is probably a growing quantity, of art ironwork is annually produced here, and largely exported. By art ironwork is meant curiously wrought tables, stands, figures, and animal models, and innumerable smaller articles, all of artistic and intricate design, which are turned out here at *Mägdesprung*.

A tall obelisk of cast-iron was erected to the memory of Duke Frederick Albert, of Anhalt, the founder of the iron-works, who died in 1796, over a hundred years ago.

We ended our rambles in the Harz at this iron-working town of *Mägdesprung*, typical of a mountain country full of mineral wealth, and of whose inhabitants a large number are miners.

As we travelled homewards we paid a flying visit to the ancient city of *Hildesheim*, sometimes called the *Nuremberg* of Northern Germany.

HILDESHEIM.

The *Altstädter Market* of *Hildesheim* is a large square.

In it is the late Gothic *Rathhaus*, or Town Hall. It was erected in 1443. On the right is the curious *Tempelherren Haus*, also late Gothic.

One of the round corner turrets almost touches the eaves of the adjoining *Wittekind Haus*, and yet we saw a waggon and horses pass through the narrow street between the two buildings.

Immediately opposite the *Rathhaus* is a remarkable house with an exceedingly high-pitched roof. It was built in 1529, and is said to be the finest timber house in Germany. Every storey projects further forward, so that when we stood in the entrance the top storey projected some yards over our head. It is called the *Knochenhauer-Amthaus*, the former house of the Butchers' Guild. The ground-floor of this house is a crockery shop, and the first-floor is a Savings and Credit Bank. The upper portion is probably used only as a store.

In passing through the *Hoher-Weg*, one of the principal streets of *Hildesheim*, we paused a moment to notice the richly carved façade of one of the old houses. The skill of the wood-carvers of the 16th century is a marvel, and their work is in abundant evidence in this city of *Hildesheim*. Everywhere you turn in *Hildesheim* you see the high-pitched, red-tiled roofs, and carved projecting gables.

To go from this street into the *St. Andreas Platz* we had actually to pass under another very curious old house. From its very high-pitched roof it is called the *Zucker-hut-haus*, *i.e.*, the "Sugar-loaf House."

The front of the *Zucker-hut-haus* is carried over the roadway, and supported by pillars. There was a constant stream of carriages, carts, and waggons passing under that house, to and

from the Hoher-Weg, the street which we had just left. The woodwork of this house also is embellished with carving.

A few doors to the left of the Zucker-hut-haus is a building which was formerly the St. Andreas-Kloster—St. Andrews Convent. The character of the doors and windows is ecclesiastical, and over the pointed windows there is a series of scriptural subjects richly painted.

The building to-day is known as Kattentid's Foundry, and is a sort of glorified blacksmith's shop.

Standing at the door of Kattentid's Foundry we got a good view of the St. Andreas Kirche and Platz. The quaint, irregular gables, and red-tiled roofs seem to transplant us bodily back to the Middle Ages. There is a large traffic through the St. Andreas Platz, all of which finds its way out at the left-hand corner by the Zucker-hut-haus.

St. Andreas Protestant Church dates from the 14th century. On the north side is the more generally used door, but if we enter by the door under the west tower we find a large room or hall between the west door and the church proper. In this hall is placed a striking statue of Bernward, who was Bishop of Hildesheim between the years 993 and 1022.

Bishop Bernward was, in his day, one of the most powerful bishops of Northern Europe. He instituted many religious foundations, and did very much for Hildesheim. He came to be regarded, therefore, with great veneration and almost as a patron saint of the city.

On our way from the St. Andreas Kirche to the Hildesheim Cathedral we passed another remarkable building, called the Kaiserhaus.

The Kaiserhaus dates from 1586. It is a Renaissance building, and is very richly adorned with statues and medallion reliefs of Roman emperors.

Continuing our way along the street, past the Kaiserhaus, a walk of about seven minutes brought us to the Cathedral. We entered by the west portal, where our attention was arrested by two bronze doors, which separated the west vestibule from the nave. These doors are 17 feet high, and have 16 subjects or panels. They illustrate the Fall and the Redemption, or the First and Second Adam.

These bronze doors were made by order of Bishop Bernward in the year 1015, nearly 900 years ago. They are unsurpassed specimens of early metal work.

Passing through the bronze doors we entered the nave. This Cathedral is of great age, having been built in the 11th century. It has been restored from time to time, and this nave was Italianised in 1730.

The aisles are separated from the nave by round arches, carried on graceful columns with richly carved capitals. In the

centre hangs an enormous candelabrum. It is of bronze and silver, and was intended to symbolise the walls and gates of the heavenly Jerusalem. The candelabrum was the gift of Bishop Hesilo, who died in 1079.

We now passed out into the Cloister Court, at the east end of the church, to look at the famous thousand year old rose-tree of Hildesheim. It grows against the apse of the Cathedral crypt, and is upwards of 30 feet in height.

Some authorities say that this rose-tree was planted by Charlemagne; others connect it with Louis the Pious and the founding of the city.

Be that as it may, a record of the rose-tree has been kept for several hundred years. Two years ago it was thought that this famous rose-tree was dying, but in the summer of 1898 it put forth two new shoots, and last summer a new and strong runner, so that we may hope that its life is secured for many years to come.

The interesting feature of the Harz Mountains is not so much in their altitude as in the fact that they rise abruptly from the great German plain, and that the scenery possesses a charm peculiarly its own.

Henry Blackburn, writing in 1873, says: "The attractions of the Harz Mountains to the inhabitants of the flat countries, in the burning days of July and August, are greater than the sea-breezes of their coast. The charm of mountaineering and walking on heather-covered hill-sides and wandering in forests of pines is greater and more alluring than the casinos on the seashore. Thus it is that the capitalists of the northern towns of Germany, especially Bremen, are popularising the principal valleys in the Harz, constructing railways and hotels, and turning little villages into prosperous summer towns. The crowded inhabitants of the old streets of Bremen and Leipsic . . . fly with natural instinct to trees and woods, to freedom and fresh air."

We cannot feel any astonishment at this. Indeed, it was a matter of surprise to me that the beauties of the Harz attracted so few of our own countrymen. We met so extremely few English persons while traversing the district, that we quite seemed to feel that we were treading fresh fields and pastures new.

Again we quote the Harz motto—

"Es grüne die Tanne, es wachse das Erz!
Gott schenke uns allen ein fröhliches Herz!"

That is—

"The fir-tree grows green here, the ore is found here,
God present us all with a joyful heart!"

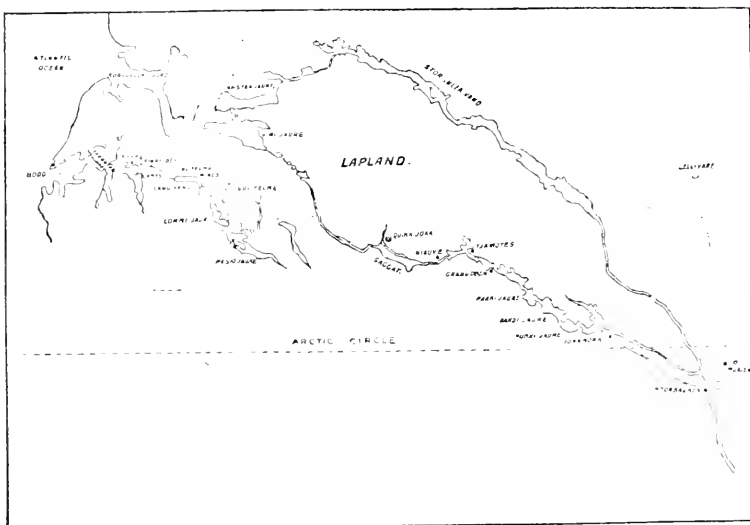
ACROSS THE LAPLAND ALPS.

BY MR. EDWARD W. COWAN, C.E.

[Addressed to the Society, in the Library, April 3rd, 1900, at 7-30 p.m.]

VISITORS to Lapland generally travel there *via* Stockholm and the Gulf of Bothnia. In this expedition a different and more difficult route was chosen. Taking steamer up the west coast of Norway, as far as Bodö, the approach to Lapland was made by crossing the mountains lying between Norway and Sweden, a desolate range without any defined road or track.

It was the original intention to cross the mountains at a point between the head of Sörfolden Fjord and Virijaure, a



SKETCH MAP, BY MR. E. W. COWAN, C.E.

small lake in Lapland just over the border. This is an old Lapp route, and from Virijaure an almost continuous waterway is available right across Lapland to the Gulf of Bothnia by Vastenjaure, the great Lulea lake, and the Lulea river.

Along the greater part of this route the country is wild and uninhabited, except by a few strolling Lapps with their herds of reindeer. It was therefore necessary to provide tent and food for the party, which consisted of four men. A collapsible boat, coracle shaped, was also taken. This boat, which is illustrated on p. 107, was specially made for this kind of travelling. Its shape rendered it safe in rough water, and being divided into three watertight sections its buoyancy was not seriously affected by any one compartment becoming waterlogged.

Boat, tent, and provisions for three weeks, added to personal baggage, cameras, etc., made up a total weight of about 700lbs., and transport had to be arranged for this equipment across the mountains between the Sörfolden Fjord or, as an alternative, the Salten Fjord and Virijaure, the first lake in Lapland. An attempt was made to arrange for this transport through the Bodö Touring Club, and efforts were kindly made by them on our behalf, but when we reached Trondhjem a telegram was received to the effect that it was impossible to get horses and that only men were available. On account of the cost of the transport of so much baggage by men, the route indicated above was abandoned, and another route chosen which lay through a more civilised part of Lapland, rendering it unnecessary to take boat, tent, or food. This route was from the head of the Skjerstad Fjord, a continuation of Salten Fjord, at the mouth



CORACLE.

of which is Bodö, to Quickjock, a distance of nearly 100 miles. From Quickjock boats could be obtained on the Lakes Saggat, Skalka, Parkijaure, Randijaure, and Vaikijaure to Jokkmokk, the capital of Lapland. From there a short journey by road brings the traveller to the small mining railway between Gellivare and Boden, and from Boden it is a two days' railway journey to Stockholm.

On arriving at Finneidet, at the head of the Skjerstad Fjord, we halted for rather more than a week, camping out and exploring its shores with the help of the coracle. During this time we made detailed arrangements for the crossing of the mountains into Lapland and engaged a guide who was a Lapp, by name Paul Paulsen, and also one carrier. Before starting we consigned the bulk of our baggage to England, taking with us as light a load as possible.

The weather was not favourable, and when on July 27th, 1899, we made a start at two o'clock in the afternoon, it was in a storm of wind and rain and the Fjord was a raging sea. Availing ourselves of the combined steamboat and railway connection established by the Sulitelma Mining Company, we reached these prosperous copper mines, which lie at the foot of the Lapland Alps, the next morning, and were received and entertained by the officials.

The mountains were hidden in the clouds and now and again squalls with heavy rain beat up the valley. The guide having reported that it would be impossible to start that day, we spent the time on our hands visiting the mines and smelting works, and hoping for better weather on the morrow. In this we were unlucky, the next morning being again stormy and wet. On Midsummer day, only a week or two earlier, they had roasted



SKJERSTAD FJORD.

an ox on the then still frozen lake, the winter having been an unusually late one. In the evening the clouds unexpectedly began to lift, and for the first time Sulitelma, the highest mountain in Sweden, came into view. Our guide was anxious to start at once and walk through the night: it was, however, considered wiser to wait until the next morning in view of the great distance to be covered on the first march to a small tourist hut, which would be the only available shelter. The evening was beautifully fine, and as the sun set the three snow-covered peaks of Sulitelma were flooded with golden light, while the valley itself was in gloom—an enchanting spectacle which we endeavoured in vain to photograph.

A peep out of our window at four o'clock the next morning showed that the weather had broken up again, but we were by then desperate men and our capacity for waiting patiently was exhausted. With the consent of the guide it was determined

to start and face the elements, and, after a hasty standing-up breakfast, our baggage was strapped on our shoulders and a start made, in blinding rain, at 6-30 a.m.

Climbing up the first slopes at the head of the valley, the high fjeld—"the roof of Norway"—was soon reached and all tree growth left behind; in its place there was a moss and lichen-covered rock-strewn undulating plateau, patched with snow and broken up into desolate lakes bounded by snow-streaked mountains, among which Sulitelma on our left would have been the most conspicuous had it not been hidden in the clouds. We had to cross an endless number of streams which fed the lakes, and walking on the rough ground with heavy loads on our shoulders was not easy—we all, including the



ON THE FJELD.

guide, had some bad falls. In remote times a great glacier had flowed over the ground on which we stood, and the up-stream sides of three great masses of rocks we passed had been worn completely convex, the smoothness and exactness of their curvature giving the finest instance of glacial attrition we had any of us seen. Here and there rounded boulders lay balanced on plateaus of rock in positions from which a push would have removed them, an impressive illustration of the solitude which for thousands of years had left these poised fragments undisturbed. At our feet was the characteristic flora of the fjeld—the Saxifrages, Alpine Distort, Linnaeus Borealis, Mountain Roses, etc., etc.

Earlier in the day, on the lower ground, we had passed some Holly Fern—a rare find even in Norway—and some *Trientalis*

among the Oak Fern, a delicate little white flower, rare in Switzerland but common enough in Scandinavia.

There was no halt for breakfast, but half an hour was allowed for dinner.

The weather having improved it was considered wise to keep on while the way was clear. The guide, of course, using neither map nor compass, was dependent upon being able to see the contour of the country. The hut we were making for was erected by the Swedish Touring Club for the use of travellers penetrating that desolate country for the purpose of climbing Sulitelma. Our guide had never seen it, but thought that he could find it. At four o'clock the River Lairojock came into view, lying a few hundred feet below the ridge on which we stood. It flowed from the Sulitelma Glacier to Lake Pieskijaure and practically its whole length was in view, completely barrin



SULITELMA GLACIER.

our way. We were nearly four hours getting across that river, and at one time the guide thought it would be necessary to swim the lake—not a pleasant prospect either for the cameras or ourselves. The stream was too swift to safely wade, and we had great difficulty in finding the plank bridge, which we had been warned had been injured or carried away by the ice during the winter.

On the other side of this river we fell in with a herd of some 1,200 reindeer, with a Lapp man and woman looking after them, the woman being in complete Lapp costume and of diminutive stature. We watched the herd being collected for milking, and talked to the Lapps, who invited us to their tents to have coffee. Time would not allow of our doing this, but we were greatly impressed with the marshalling of the great herd of deer. We were at one time completely surrounded by these

beautiful animals, the clicking of colliding antlers making a continuous sound, the source of which was at first puzzling to discover. At 8 p.m. we moved on again, and passing the Lapp encampment, consisting of only two or three tents, had a palaver with a few more Lapps there. Though we did not understand Lappic, we could see from their gesticulations that they were describing some formidable obstacle ahead, which, tired and hungry as we then were, was not inspiring. Half an hour later another river, the Lairejokk, was negotiated—that one without difficulty. At 10 p.m. the foremost member of our party gave a shout—"The Hut!" There it was, a small red timber building about a mile ahead in a conspicuous position. We, however, soon found that it was on the other side of a broad deep river, the Varvekjts, and if the small so-called boat, which could be used as a ferry, had not been on the near side of the river we should have been done, unless a volunteer could have been found to swim the ice-cold river and fetch it. By great luck it was on our side, one other traveller, a Swede, having passed during the year, and he was travelling from Sweden to Norway.

It was nearly eleven o'clock when we entered the hut—very hungry, very wet and cold, and so tired out that we could scarcely stand. We had walked for sixteen hours and covered about 35 miles, which, with the loads we were carrying and the roughness of the ground, was a formidable day's work. The hut was damp, evil smelling, and mildewy. There were enamelled iron cooking utensils and a stove, but, alas! no fire-wood. Perhaps the less said about that shivering, wretched night the better; only we kept our spirits up, and the guide and bearer, by the greatest patience, succeeded in boiling some water with a fire made with green dwarf birch. We were choked with the smoke, but the subsequent cup of coffee was of priceless value. The temperature in the hut was about 42° F. and all our things were wet. The morning was indeed welcomed, and the relief of walking again as we started off in a small snow storm, with the thermometer down to 38° F., was very great at first, but having had no proper rest weariness and fatigue soon began to tell. We were then walking north-east, about 4,000ft. above the sea level, and a few miles north of Peskijaure. On our immediate left was Tsaggok, 5,200ft.

There was a cutting wind and the *terrain* was very bad, consisting of huge boulders. Besides the reindeer we had met a kind of ptarmigan the day before and some lemming. These ptarmigan were very tame, and one of them came running up to us as a chicken might when we called it. The second morning, at that great altitude, a solitary butterfly—one of the clouded yellow species—was the only living creature we met. The poor insect was blown along by the icy wind, and must,

one would think, have had a wretched and very brief existence. The chief forester of Lapland subsequently told us that this butterfly was only found on the fjeld. Our guide informed us that he expected to reach the second tourist hut by 6 p.m. and that there was plenty of firewood in its neighbourhood. We had therefore delightful visions of warmth and hot soup, and, most important of all, means of drying our wet clothing. But we did not reach that hut at all that night. At two o'clock the next morning we crawled into a small hut which had been abandoned by the Tourist Club for a new one, which we could not find. We had given up the search about nine o'clock in the evening, and bivouacked by the Tarrejoek river, somewhere on the left bank of which we understood the hut was. We were severely mosquito-bitten, having walked for some miles through a dense growth of stunted trees, mostly birch and dwarf willow,



MOUNT TSAGGOK.

where these pests were swarming. From the high ground referred to above we had gradually descended to this luxuriant valley, entering it by the Katnjnonjej valley, a weird barren place, darkened by the great heights on either side. Three eagles hovered over us, crying with anger at our invasion of their haunts. The last morning, for we were due to arrive at Quickjoek on the third day, brought glorious sunshine, and we were able at last to dry some of our things.

The illustration on p. 113 shows the second hut and the mosquito veiled travellers on the banks of the Tarrejoek river.

It was well that the third day was to be the last of the journey; a sprained knee and ankle threatened to bring one of the party to a standstill, and we were all feeling the severe demand which the great exertions of the last two days had made upon us. A night's rest might have recruited us, but no

sleep worth having was possible while lying on hard boards shivering in wet clothes. Speaking for myself, I found that every step was a weary effort after the first half hour on the third day. The journey was for the most part through dense forest, but a faint track, very difficult to follow, made the route easier than it would have been had we been compelled to fight our way through the virgin growth. The mosquitoes were a great scourge, our veils being of little use, as they were torn from their position by the low branches of the trees past which we had to force our way. The forest was full of game—ptarmigan and capercaillie—and the river appeared to be full of fish; we found time to catch a 3lb. char. We were told that bears abounded in the neighbourhood, and we came across the tracks of one, but Bruin himself kept out of sight. By midday we had descended sufficiently to reach the first fir trees, the higher



HUT ON BANKS OF TARREJOEK RIVER.

level of tree growth consisting of birch only. At three o'clock in the afternoon we arrived at a small farm (Nuonjes); it is the first habitation in Lapland, and was a very welcome sight to us. Some refreshment was obtained and a rest. The guide asked us whether we would not remain the night there and leave the remaining nine miles until the morning, but we replied "Aut Quickjoek aut nullus," and he responded cheerfully if not readily; so at four o'clock once more, in heavy rain, we started on the last stage. Our rate of travel was extremely slow: we were constantly waiting for each other, and the sprained leg was almost at the point of refusing to take another step, though its owner kept his spirits up and struggled on, game to the last. On the bank of the River Tarrejoek, at a certain point, we expected to find a boat, which would enable us to gain the comfort of rowing the last three miles to Quickjoek, but as we

did not find it there we threw ourselves down exhausted in the rain, which trickled down our backs, while the mosquitoes furiously attacked us at every point. Anything was better than standing or moving. In half an hour the guide and carrier succeeded in finding the boat and we embarked, gliding swiftly down the winding river, with its beautiful forest-clad banks, and getting peeps now and again through the clouds of the mountains we had left behind. A few wooden houses and a church appeared at last on the right bank of the river where it runs into the lake. It was Quickjock, and our journey had ended. We felt that the privations of the remainder of the distance across Lapland to the railway would be nothing to what we had gone through. While sitting still in the boat we had lost proper control over our legs, and we were compelled to stagger up to the inn in a fashion which, combined with our ragged and dishevelled appearance, gave the natives a sight which, judging from the way they gazed at us, will long be remembered. A huge fire at the inn was soon surrounded with our wet things—there was not a dry garment of any sort amongst us—and we later on experienced the delicious sensation of dry clothes, a warm fire, and a hot supper. The remembrance of that evening of rest, pervaded by a sense of achievement, will long remain in our minds, and so, alas! will the remembrance of the night which was spent fighting hundreds of mosquitoes and not in gaining the much-required sleep. The next day was spent in rest and pressing botanical specimens, with a little photography.

The view looking towards Norway from Quickjock on a fine day—preferably evening at sunset—is said to be one of the finest in Europe. In the foreground are the wooded islands at the mouth of the river and at the beginning of the lake, and behind, ridge after ridge of fir-fringed hills, then behind these the slopes of the great mountains, and lastly, in the background, the snow-covered heights of the Lapland Alps. When one imagines such a scene, lit up by the varied colours of the glorious sunsets of these parts, it is not difficult to understand why Quickjock is called the Paradise of Lapland. But this wonderful sight was not for us, the clouds shutting it out from our view.

After our day's rest we joined the postman in his rowing boat and made our way with the mail to Jokkmokk, the capital of Lapland, in two days—a quick journey in rowing boats the whole way. There is not even a footpath on land, the first road beginning at Jokkmokk. Of the 800 miles railway journey from the Gellivare Railway to Stockholm there is little to say, excepting that it is a cheap and comfortable journey to the point of being luxurious. There was a panorama of continuous forest almost the whole way, divided now and again by the great rivers of Sweden, which empty themselves into the Gulf of Bothnia and the Baltic Sea.

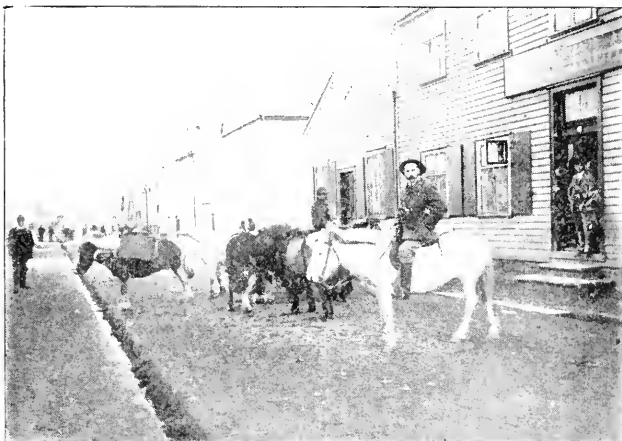
ICELAND AND THE ICELANDERS.

By MR. JOHN R. NEWBY.

[Addressed to the Society in the Library, at various Meetings.]

I.

OF the many misunderstandings regarding the volcanic isle situated immediately south of the Arctic Circle (it stretches from 63 deg. 24 min. to northern latitude 66 deg. 32 min.) few have found more credence than the dangers and troubles which are

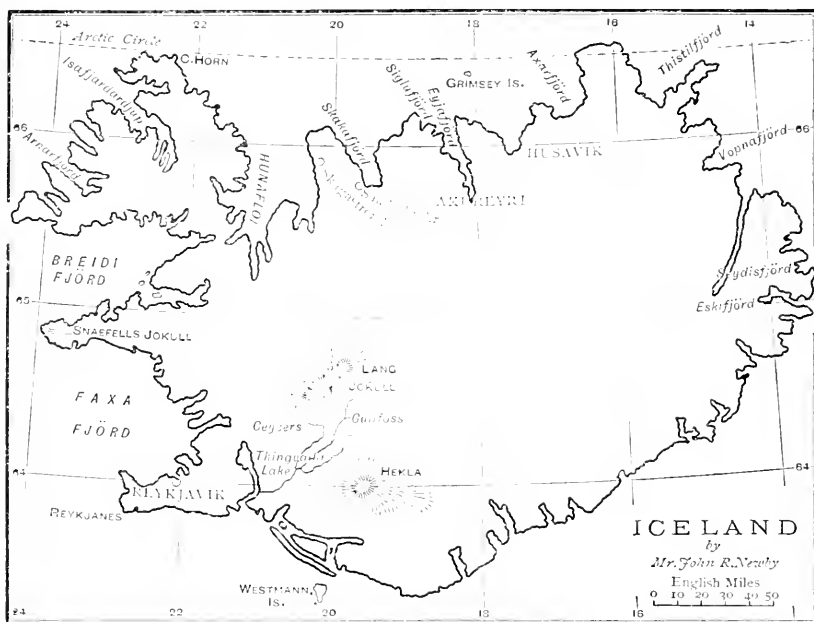


HOTEL ISLAND, AUSTUR-STRETI, REYKJAVIK.

supposed to beset the traveller, and the expense attendant on the journey. My experience, after two voyages to the isle, is that travel in Iceland is no more costly than in other parts of the world: and, if a tourist is provided with a proper outfit, the best known places in the island can be visited with as much ease and safety as can Switzerland or the Pyrenees. As to its history, to begin with the beginning, a viking (named Flóki Svafarsson) landed on the island at the end of the ninth century and gave it its present name: the first colonists were of no servile race, but Norse chiefs who fled from the government of Harold Fairhair. More than half the names of the first settlers contained in the *Landnámna Bók*—the *Doomsday of Iceland*—are those of Northmen who had before settled in the British Isles.*

* See "The Story of Burnt Njal, or Life in Iceland at the end of the xth century" by G. W. Dasent, D.C.L.

I have twice visited Iceland, on both occasions in the autumn; the best months for a traveller on a holiday tour are July and August. Three and a half days' steam from Leith, near Edinburgh, lands a tourist in Reykjavik (the capital of Iceland). If the boat calls at Farøes the journey occupies five days; the island (about a sixth larger than Ireland) is 500 geographical miles north-west of Duncansby Head in Scotland, 650 from the north-west coast of Norway, and 250 from the east coast of Greenland. On my first trip, in September, 1893. the Danish mailboat—s.s. "Thyra"—sailed from Granton, a port a few miles east of Leith. The steamer was advertised to leave on Saturday, the 9th of September; when I arrived at the Granton Docks on the afternoon of that day the vessel was in sight, labouring along the Firth



of Forth in a heavy sea. She ought to have arrived on the previous day, but, being the last boat that sailed to Iceland in 1893, she was very heavily laden with food for the islanders during the coming winter, and she had encountered head winds during the voyage from Copenhagen.

As Saturday afternoon is a half-holiday at Granton, we could neither load, or unload, the vessel, and, next day being Sunday, my fellow-passengers and myself had the whole of that day in which to see Granton and its environs. More than one town has been described as a "skeleton": such was this Scottish seaport—a sort of prospectus of what was to be—roads laid out in regular order, with numerous signboards informing the public that this or that plot of land would be granted on "feu"

(*Anglice* leased). There is "The Square," which consisted of *two sides*; one of these was occupied by a large dour looking hotel, more like a barracks than anything else; all the buildings were of cold grey stone. On Sunday the inhabitants promenaded on the central pier. Many vessels used to call at Granton in preference to Leith, because the charges for anchorage and discharging cargo were lower there than at the latter port. After dining at the hotel I took my luggage on board the s.s. "Thyra," secured my berth, and slept in it on the Saturday night. The captain of the boat was A. Garde, premier lieutenant in the Danish navy; he spoke English very well, and was one of the most agreeable men I ever met. The officers, stewards, and crew were, with one exception, Danes; one of the crew was an Icelandic. On the Sunday morning, after a Scandinavian breakfast, made up of all sorts of cold savoury condiments and some substantial food to follow, I took a stroll round Granton. Luckily it was a lovely sunshiny autumn day, just the weather for *dolce far niente*, so I spent the day as the inhabitants of the Land o' Cakes passed it, "whusky" excepted. The public-houses were "closed," and yet the black-coated natives did not walk straight!

I compared my aneroid barometer with the column of mercury on the pier, which stood at 30 deg. The unloading and reloading commenced early on Monday morning; the vessel was so full of cargo from Denmark that we had to leave some of the English goods at Granton. During the afternoon my fellow-passengers from Scotland, who had been staying at the Granton Hotel, embarked. One was a thick-set, determined-looking little man between 40 and 50, "dressed all in black," accompanied by a light-haired Scandinavian lady of about 22. I found he was Sira (or Sjera, the "j" being pronounced like the "y" in yarn) Matthias Jochumsson, the prestr (priest) of Akureyri, the northern capital of Iceland; the young lady was his eldest daughter. He was returning from a visit to the Chicago Exhibition, and his daughter had been visiting friends in London whilst he was in the United States. There were on board four officers of the Danish army (Royal Engineers) and some non-commissioned officers *en route* to the Faröes to survey, and to complete, a new series of lighthouses on those isles. The Færøerne (*Danish*, "ne" is the definite article) derive their name from "føer" (sheep) and "øer" (islands), so that it is tautological to speak of the Faröe *islands*. A youth, fresh from Oxford (a native of Somersetshire), shared my cabin so far as Faröes; he was a very bad sailor—in fact, no sailor at all—and it caused me no regret, when we had landed the Danish military, that he got a berth on the other side of the vessel, adjoining a cabin occupied by two lads from Liverpool, of whom we saw nothing during the time we were on the sea. The Syssemand—sheriff—of the Faröes was a passenger on both occasions when I have travelled from Scotland to the isles; he acts as a judge and revenue officer. His name is Hugo Holm; he dosed himself with drugs from the time we started until we anchored off Thorshavn, the capital of Faröes; he spoke English well, and confided to me, much against my wishes, that his heart was affected, his lungs were out of order, etc., etc.; and, notwithstanding the drugs, spent most of his time inspecting the sea over the side of the boat.

On Monday afternoon, the 11th of September, we started for the North, and steaming along the Firth of Forth in a clear atmosphere we had excellent views of the Forth Bridge, the Bass Rock—off North Berwick—and May Island. So soon as we got outside the Firth two Icelandic ladies who were travelling to a port on the north-west coast of their native land retired, and did not re-appear until we arrived at Thorshavn: very few people appeared at meal times. The s.s. "Thyra" was a fine sea boat, so strongly built that she could go through ice. The owners of this vessel and the sister boats are the Royal Danish Mail Steamship Company. The "Thyra" has on several occasions been in the Arctic ice; she is 568 tons burden, and under ordinary steam burns 17 tons of coal in the 24 hours; her engines were made in Scotland, as were those of the Royal Mail s.s. "Laura," by which boat I went to the North in 1896; she is a boat of 689 tons burden, and has a bath-room amidships.

On my first trip I had, as we were making our way along the west coast of Scotland, a long chat with Sira Matthias Jochumsson, over our tobacco, and he told me much of interest about himself and his belongings. Speaking slowly to him, and avoiding all English words derived from the Latin and Greek tongues, it was surprising to me how easily we carried on a conversation. The term "Sira" (sometimes incorrectly spelt "Séra") is the equivalent of "Seigneur," "Señor," and "Sir," and Icelanders apply it to clerks—merely adding their *Christian* name—an interesting fact, of which more shall be mentioned. The word "clerk" is, of course, the same as the French word "clerc"—the primary meaning of this word being "a man who could read."* *Now* in legal documents the word is used to describe a clergyman, or ecclesiastic. My newly-made acquaintance told me that in his native land surnames—*i.e.*, names added to the baptismal or Christian names, and in many instances becoming "family names"—are seldom used. Until the middle of the last century all historians agree that in the county of Kent all surnames were patronymics or matronymics—names (borne by the children) of parents or ancestors, such as Johnsson, the son of John—and this was the olden custom throughout England and Germany. The sons of Herr Jochumsson are called Matthiasson, and his daughters Matthias-dóttir. I saw at the University in Copenhagen, at Christmas time, 1899, the eldest son of the prestr, who is studying medicine, and every one addressed him as Matthiasson.

About the tenth century—probably through contact with foreigners, such as the Gaelic tribes of the West, eke-names—*i.e.*, *added* names—became very common in Iceland. At the time when the Landnáma Bók (literally the Land-taking Book, or Book of the Settlement of Iceland) was compiled, say, about 1100, surnames evidently abounded. It was about this time that the custom of taking surnames developed in Great Britain. The subject of their adoption is very interesting. In olden times in Scandinavia, on the bestowal of an eke-name, it was usual to confer a gift on the recipient, which was called the *nafn-féstr* (name fastening). The Jews in selecting surnames—or sire-names—used personal names. Both Saxons and Celts usually derived surnames from places, but the former mostly selected names derived from

* Blackstone's Commentaries on the Laws of England.

occupations and inanimate objects—such as Smith, Taylor, Goldsmith, Stone, or Hill; as in Shakespeare's play of "Richard II." John of Gaunt, when addressed by the King as "aged Gaunt," responded in that well-known speech, playing upon his name, and commencing with the sentence, "Oh! that name befits my composition." Had Joshua, the son of Num, resided in Iceland he would have been known as Nunsson. Judas Iscariot derived his name from his estate; such is at the present time a common way of distinguishing Icelandic bonders—or landowners—there is a Petr á Reykjalid, and Jón of the Strönd—i.e., the coast. In Reykjavik I saw a curious official paper, published in 1855; it states that the island had only 63 native surnames, and 530 men's and 529 women's Christian names. Out of a total of 5,053 names, "Jón" occurred 4,827 times, "Jóhannes" 498, "Jóhann" 494, "Hannes" 154, and "Hans" 80; "Thor," the mythical god of thunder, and son of Odin (as a compound), enters into 2,010 male and 1,875 female *Christian* names.

Besides surnames, the Sira discoursed about himself and his belongings; he formerly had a cure of souls in the south-east part of the island, the income of which was very small, and he was glad to receive his present appointment in the north, the emoluments of which amount to one hundred and thirty pounds a year—that is, they ought to do so; but he said there was thirty pounds a year he had never succeeded in collecting! He had been thrice married, and was the parent of ten children; he excused himself for not inviting me to his dwelling at Akureyri on the ground that he expected to find "a little stranger" there. He is the recognised poet laureate of Iceland, and, in addition to having written much poetry, he has translated many of Shakespeare's plays and other classics; he it was who wrote the "King's Welcome," on the occasion of Christian IX., the present King of Denmark, visiting Iceland in 1874, when the monarch granted the old Norse colony the constitutional right of making its own laws.* On the Danish boats the steward, between seven and eight o'clock, brings each *voyageur* a cup of coffee and some rusks, and excellent coffee the Scandinavians make. A steward or a waiter in Denmark when serving anything, or announcing that a meal is ready, always says, "Vær saa god" (Be so good), and all requests amongst Danes should be commenced with these three words. In Iceland "Vaersgu" is the usual term; "Gjörð soó vel" is the Icelandic equivalent. On the first morning of my '93 voyage the Sira turned up at breakfast (frokost) at ten o'clock, and so did some of the other passengers; but the latter, with two or three exceptions, "turned up" in another sense very soon and disappeared, and, though we heard much, we saw little of them until we anchored off the Faroes. The artful steward had planted about the breakfast-table cheeses of all sorts, shapes, sizes, and colours: in one respect they were all alike—they were strong, very strong—and at meal time there was a lumpy, cross sea on. On these mail boats "meals are charged for in all cases," which proved a trying regulation for those who were unable to eat. After breakfast there came into our saloon, from the second-class cabin, a short, thick-set, bucolic-looking man, between sixty and seventy, who wished to see my cabin

* For a translation of portions of this ode see "Icelandic Pictures" by F. W. W. Howell, F.R.G.S.

companion. We soon named this "character"—for such he afterwards proved to be—"The Veteran." He told me he was a Somersetshire man, who had been through the Indian War, and was an old retainer in the youth's family. He sympathised with, but failed to relieve, his young master's troubles. We saw nothing of land during the first day, and passed (during the night) between the Orkney and Shetland Islands.

The second day of the voyage proved bright and genial, and now we felt the long Atlantic roll. Amongst other things for breakfast we had raw herrings and chopped up raw onions; Sira liked them, I did not. Dinner—spise (or middags mad)—is served on these boats at four o'clock, and supper (aftens mad) at half-past seven. Sira said that pastors or ministers in Iceland have much to do besides teaching religion; the greater part of them have a farm, on which they cut and make hay, and also cut turf (Icel., *turn*); all can shoe a horse, and many of them add to their scanty stipends by taking pupils. My friends did not indulge in excesses, but during my peregrinations I have seen more than one native prestr who did. Sir Richard Burton, whose book* is not a favourite work with Icelanders, gives many details as to the temperance question in the island. In 1896 I noticed the Salvation Army had barracks in Reykjavik. I was reminded in more than one instance of the followers of the Greek faith in Transylvania (the Wallachians), who in olden times locked up their priests overnight, and did not release them until mass had to be said in the morning, and so ensured that they should be fit to minister in the morning. A soup we often had for dinner was made of sago, coloured with claret, and floating in it were cherries, whortleberries (tyttleber), stoned raisins, prunes, and slices of lemon, and a very dainty dish it was. After this meal coffee was always served in the smoke-room. It was on the afternoon of the second day that we first sighted the Faröes; we noticed the islands appearing one after another like great grey clouds, and as we approached nearer they took the form of pyramids. There are about five-and-thirty islands in all, half of which are inhabited.

Reliable works published about the Faröes are by no means numerous, but a little-known book† which gives a truthful account of the isles and their inhabitants, and is illustrated with engravings by William James Linton, is well worth reading. We first passed *Suderöe* (the South Isle), then we had good views of *Lille Dimon* (Little Diamond) and the *Store* (Great Dimon); they look inaccessible, but there are some folks on the latter, and these a prestr used to visit. It is on this isle impossible to keep any boats; the parson was pulled up from the water in a basket. About 8-30 in the evening we anchored off Thorshavn (in *Strömmöe*), the capital of Faröes.

This seaport lies at the foot of hills that come down to the water's edge. About seven o'clock on the morning after our arrival, accompanied by Sira and his daughter, I went on shore in a Faröe boat; these skiffs all have the high-pointed bow and stern of the Norwegian yawl. I found it good economy to go about with my newly-made acquaintances, as, though I paid everything, it cost me less than I should have had to pay had I not been accompanied by some one who knew what were

* "Ultima Thule. A summer in Iceland," by Sir Richard F. Burton. 2 vols. 1875.

† "Pen and Pencil Sketches of Faröe and Iceland," by A. J. Symington. Longmans. 1862.

the proper charges—and extremely moderate they were. Every foot of ground in suitable positions was occupied by split codfish laid out to dry. Streets there are none, but narrow alleys wind and twist amongst the wooden dwellings, the roofs of which are covered with growing turf. The inhabitants number about 1,200. The Governor's house is in the centre of the town. On a hill at the back of the place is a stone obelisk erected in commemoration of the visit to the island in 1874—when *en route* to Iceland—of the present King of Denmark; from this hill we got an excellent view. Strolling along the roughly-paved ways we saw into the interior of many of the dwellings, the outside of most of which are covered with tar to preserve them from damp. Dampness prevails throughout the Faröes. It seems probable



AT THORSHAVN, FARÖES.

that much has to be learned as to the courses of the Gulf Stream in the North Atlantic, and every one must feel pleasure in knowing that Dr. Nansen proposes to visit the North Atlantic, and the northern coast of Iceland, with the object of ascertaining the currents and the precise flow of the warm and cold waters in the northern latitudes. Stretching south-westward from the Faröes is a huge submarine bank, from the northerly end of which rise the highest of the hills in these isles, and here it is that the warm Gulf Stream meets the Arctic current; the first has a blue tint, that of the returning current—for on this planet a current in any direction must imply a return current in an opposite course—has a green hue. The cold water rides—according to the laws of nature—*over* the warm stream, the result being fog, rain, and wind.

Having paid four visits to Farøes, I think the people who live there are right in saying that on most days rain or snow falls; still, the islands are well worth visiting. The hill sides are covered with grass, and in the capital the shrubs and flowers in the gardens are very pretty; trees there are none. The men are well built, well proportioned, intelligent, and good-humoured looking; their garments are, as a rule, made out of some brown woollen stuff. Above their knee-breeches, adorned with bright brass buttons, they wear a short jacket; it is *en règle* not to fasten these buttons at the knee, so that the ornamented garters worn below the knee may be seen; these hold up their thick brown woollen stockings, reminding one of the *jeunesse dorée* in our own country who turn up the bottom of their trousers (in all states of the weather) and leave unfastened the lowest of the buttons of their waistcoat. I obtained a horn-shaped cap of dark red cloth, which the Farøe man hangs on one side of his head in style quite rakish. The legs of the men are bandaged with thongs, or a sort of laces (of bright colours), attached to their shoes—or mocassins; these feet coverings are identical with those worn by the American Indians—the wrappings seem more ornamental than needful; most of the women wear red cords around their ankles. I took a photograph of a native at Westmanhavn; the feet of both men and women are covered with sheepskin shoes or slippers—usually yellow in colour, and made out of one piece of skin, drawn together from the toes to the instep, and the hinder part of the covering for the foot—I can hardly describe it as a heel (Icel., *hæll*)—is formed in the same fashion. Over these the men when they go to sea wear solid wooden shoes. The soles are between 2 and 3 inches in thickness, and they protect the sailors' feet from the water in the fishing boats. Most of the women are fair-haired; they plait their hair at the back, and in front the hair is neatly parted and drawn back above the ears. Fringes are unknown. Most of the women wear black gowns, a shawl over their shoulders, and aprons of a coloured pattern; the expression of their faces is best described as being very kindly, sweet, and pleasing. I bought a frame for a photograph for the sake of the hand-carving (by Absolom Jóhanssen, of Kláksvíg); I am very pleased to possess it. When on shore I said "God morgen" to every man, woman, and child I met, and the salutation was always cheerily returned.

The grass or turf on the roofs of the Farøe dwellings is between ten and fifteen inches thick, and is green and luxuriant. Oh! how I laughed when, for the first time, I noticed a sheep getting its meal on a roof. The Sira's daughter did not understand what tickled my fancy, and I had to explain to her that I had never before seen a cover of grass to a dwelling-house (Icel., *hroff*) or a ruminant browsing on a house top. The buildings are low, and in many cases have been erected in uneven spots, so that from the higher ground animals have no difficulty in getting on to the roofs, and it is a usual thing, both here and in Iceland, at farms to see the sheep-dog on the house top, and he gives warning to the farmers of the approach of any one. The poorest people have only one room, in which the household cook, eat, feed, and sleep. Vehicles there are none. The alleys or passages are for pedestrians only; they run

up-hill and down-hill, and occasionally take the form of stairs. The nuisance inspector is unknown, and yet the inhabitants look well and healthy, notwithstanding that fish offal lies all around. At the angles of the wooden huts are fish-oil lamps; these, no doubt, are of great service during the long winters. The chief food of the Faröese is black or brown barley or rye bread, fish, milk, and coffee.

I went into the inn with the parson and his daughter—found the names of several people I knew in the visitors' book—everything was very clean and sweet; we each had a cup of coffee and some biscuits, and the total cost was fourpence halfpenny. "You will not think that very dear," said my friend. For the first time I now saw eider-ducks swimming about; here they are not in such large numbers as in the fjords of Iceland. The autumn plumage of most birds is sober in tone, and at a distance these ducks looked almost black; the drake's plumes have more variety than those of the duck. The bird is about two feet long, and weighs (on an average) six or seven pounds; it is a graceful swimmer and is strong on the wing—flying in a very straight line. It is astonishing in Iceland to see the immense numbers of these ducks on nearly all the inlets of the sea, and in the bays opposite the towns or settlements, they seem far tamer than ordinary farm-yard birds; when the female is sitting she will allow her back to be gently stroked, without leaving the nest. The birds are rarely seen inland; they prefer damp rocks, near salt water, where they feed on seaweed and insects; every care is taken to protect them from predatory sea birds, such as the skua (Icel., *skufr* or *skumr*), dogs, and cats, of which latter there are, I noticed, many about. The birds are carefully looked after for the sake of their feathers, and fines are imposed upon any one killing them, or shooting at them; they pluck their breasts of the fine down, in order to make their nest, which is taken by the owner—in the North they term him "farmer"—as soon as finished. The birds then make a second nest, which is also appropriated, and even a third is occasionally taken, though, as a rule, the breast of the poor palmiped has now become quite bare! The first eggs are laid about the beginning of May; they are whiter than those of the English duck, and about the same size. I have one in my collection of eggs. They number in the first nest from four to six, in the second hatch there are generally two or four, and in the third fewer; if not taken away they will accumulate to ten or sixteen. The down acquired at each robbery of the nest weighs about one ounce; three nests yield about half a pound. If the home is despoiled a third time, I was told that the drake contributes some down, easily distinguished as being of a whiter material than his mate's; but, as a rule, after a third taking the unhappy couple flit from their home. These birds regularly build on the roofs and window sills of farms adjoining the coast; the down is sold for from twelve to eighteen shillings per English pound. When disturbed, the eider-duck hurries away, flapping the water with its wings and uttering a hoarse "errr." In Thorshavn I saw these birds associating with the ordinary ducks, both in the streams that run through the place and in the bay.

Both in Faröes and in Iceland adjoining most of the dwellings is an open cage of wooden uprights and stretchers composed of latfis, roofed in as a protection from the snow and rain; so the air has free

passage through this "wind-house," as it is termed. Here for an indefinite time hang codfish, shark flesh, and whale uncooked. I was told whale flesh is very sustaining; I can vouch it is very "strong." In appearance it is black, and inside the flesh is white fat; it does not look appetising. On the outside of the wind-houses hang rows of small fish, which are eaten—bones and all—when they have been thoroughly dried. The majority of the dwellings in Faröes are erected on foundations consisting of blocks of stone, for the most part whitewashed; the wooden portions of the houses are in the majority of instances painted with bright colours, which, in conjunction with the bright-coloured flowers in the casements, give a bright and cheery appearance. The roofs are formed of birch bark brought from Norway, 380 miles east of the island, and above this is grass-green turf (Icel., *torf*). Above Thorshavn, walking inland, is a bed of moss; here it is that the natives cut the peat or turf, which forms their chief fuel. It is cut into strips and placed in heaps to dry—much in the same manner as in Lancashire—and when ready to use is brought down in baskets on the backs of women.

In the paper I read to your Society on the 16th December, 1896,* I described in detail the mode of construction of farmhouses in Iceland. The majority of dwellings in Faröes are built on much the same principle. Dogs and cats are very numerous. The women wash clothes in the stream that flows from the hills through Thorshavn to the sea; placing the linen on the larger stones, they beat it with wooden boards. In different countries there are varieties of methods of cleaning linen, the operation being in my experience mostly performed by the fair sex; but, wash where they will, the washers are ever garrulous! Cleanliness was a most noticeable feature in the capital of Faröes. The bunches of berries on the mountain ash, or rowan-tree (*Pyrus aucuparia*), had become a deep red. For the collector of mineralogical specimens there are few hunting-grounds as good as Faröes; chalcedony is common, and there are numerous varieties of opals, zeolites, agates, and stalactites.

The people of Faröes are a very religious body of Christians, and adhere strictly to the doctrines of the Lutheran Church. When Mr. Frederick W. W. Howell wrote his "Icelandic Pictures" (published by the Religious Tract Society), to which I have previously referred, he stated that he entered a house in Thorshavn where a missionary connected with the Plymouth Brethren had established himself, and with him had an interesting talk. When I was there in 1896 I noticed "To Let," in the windows of this building, adjoining the Governor's House. Faröes are a part of Denmark, and *throughout* that kingdom the texts from which sermons are preached are fixed for all the churches, for all the Sundays in the year. The Danish Established Church is the "Evangelical form of Lutheran Protestantism."† In charge of the hundred Faröe villages are a dean and six pastors. The home-tongue of the people is more like Icelandic than Danish. The finger-rings worn by the women are numerous and various; all the fair sex through-

* "The Earthquakes in Iceland, 1896." Vol. xii. of the *Journal of the Manchester Geographical Society*, p. 174.

† See "Denmark and Iceland," *Foreign Countries and the British Colonies* by E. C. Otté, Author of *Scandinavian History*. [Samson Low & Co., 1881.]

out Scandinavia thus adorn their digits; some of these circular ornaments are tokens of confirmation, others are betrothal and marriage rings; many wear four, and even more, plain golden—or brass—circlets. When a wife presents her husband with a son she receives from him a ring.

The pastor took me to call on Herr Hansen, the Norwegian consul, whose dwelling adjoins his warehouse; there we found him about half-past seven in the morning at the receipt of custom. He had in 1893 been trading in Thorshavn for thirty-seven years past. On the ground floor of his dwelling were three sitting-rooms, well carpeted and nicely furnished; no fireplaces, but a stove in each room; in the furthest room were well-filled bookcases and a piano. In the first apartment was a lady dressed in black, cutting out some article of attire. My friend and his daughter shook hands with her, and I did the same; it is always right to shake hands freely in Northern latitudes. We sat in the second room (it had an Eastern aspect), and very light and pleasant it looked in the morning sun, with the bright flowers in the window-sills. We had a good view of the harbour and the town. Our host gave us some excellent milk; he at first told me he did not speak English, but on my speaking slowly we easily carried on a conversation. The third sitting-room was evidently a sort of drawing-room for the reception of company. Herr Hansen was a widower, and, having no children living, was wishful to sell his business and go to reside in Copenhagen. He told me the fish trade and the crops in the islands had been unusually good in 1893. When we left the house we again shook hands with the lady dressed in black. On getting outside I asked the prestr if she was a daughter of the house, and he said, "Oh, no; that is one of the servants." Taking us through his extensive warehouses and stores, Herr Hansen showed his arrangements for supplying victuals and stores to ships and boats. The place was an *omnium-gatherum*—rye-bread and anchors, white bread and ropes, and tackle of all sorts formed an unusual medley. I wanted to speak to a native called Jacob Jacobsson, who had lived for many years in Thorshavn. On asking Herr Hansen where Jacob (pronounced Yacobb) resided, he said there were no longer any Jacobssons in the place. I said, "He is not a merchant, but a carpenter, I think." "What, Yacobb?" he replied; "he is now painting my warehouse." We went outside, and Jacob climbed down his ladder and I had ten minutes' talk with him amongst the codfish and haddocks strewn about on the stones to dry. *He* was pleased to hear of an English lady who had lodged at his house for three weeks, and *I* had an opportunity of becoming acquainted with new odours! Herr Hansen invited me to call on him as I returned; but our vessel was very late, time was short, and weather bad, so I did not land on the return voyage. I hear from my Icelandic friend Kristjan of Jacob every year, and we have exchanged gifts. He seemed very pleased when I called on him on Michaelmas Day, 1896; he introduced me to his wife and daughter, and regaled me with coffee and biscuits in his best room; he speaks good English, but I had the greatest difficulty—owing to my merely slight knowledge of the languages of Scandinavia—in making him understand that I was bound North for the purpose of making investigations as to the recent earthquakes—of which he had not previously

heard. Now, I am unable to say what is the correct Farøe equivalent for an earthquake. He is a builder of houses in summer, and fisherman during the winter months; he has a very cosy abode, and pointed with pleasure to a copy of Howell's "Icelandic Pictures" which I had sent him in 1894. He has several sons, all doing well; one—in 1896 aged twenty-five—is engineer on a ship sailing from Leith; her last trip was to Archangel. Another son is in trade in Copenhagen. The inhabitants look, and are, a very intelligent, well-built set of people. I visited the House of Parliament, called by the people the "Lagthing." In addition to this legislative chamber, the political rights of the islands are protected in the mother country by the presence in the Danish Landsting of a special representative for the islands. The word "thing" (the "h" is not sounded) means a place of meeting, as well as the assembly sitting there. It occurs in our geography, as Dingwall in the North of Scotland, Tingwall in Shetland, and the Tynwald Hill in the Isle of Man, on which, in the year 1891, five bills which had received the Royal assent, one for the re-distribution of seats in the House of Keys, were promulgated to the legislature in the open air by the then Lieut.-Governor, Spencer Walpole. The primary meaning of the word is a forum, or court of justice. Our present-day word "meeting" is *nothing*, just as "husting" is *hvis thing*.

Walking inland, are to be seen numerous ice marks, *stræ*, on the huge boulders of stone lying about on the higher land; these look much like a number of carcasses of whales partly buried in the earth, and turned into stone; their very hardness enabled them to retain the impress of the marks in a truly marvellous fashion. And on the hill tops we saw poised numerous glacial boulders and stones, left there, doubtless, centuries ago as records of the Ice Age.* Outside most of the houses hang vertebrae of whales, that add their quota to the fishy odours of Thorshavn. Sometimes shoals of a small kind of whale (some twenty feet long), known in Orkney and Shetland Isles as the "calling whale," approach the Farøes; then the natives go out in boats, form a semi-circle behind the shoal, and drive them into a fjord, where they are easily killed with lances and knives. I secured one of these knives; it is beautifully decorated; the hard, black, highly-brightened wood sheaths are bound with rings of brass, within each of which are brazen inlaid figures of harpoons, a boat, and a whale. In the harbour of Westmannhavn—a port not often visited by the Danish mail boats—I took a photograph of a fisherman in his everyday dress; the law does not permit these men to go to sea without a knife at their girdles, and if they do so they are liable to heavy fines. The people sometimes eat the flesh of the whale fresh; often it is hung up to dry; the blubber is boiled, and oil extracted, and the fat is cut in strips and hung until it is rancid enough for their tastes! Outside Thorshavn in 1893 were sheaves of barley and oats—very short in the stalk—lying in the fields; the hay was in cocks; the same state of farming was to be seen at the end of September, 1896, on the hill sides near Klaksvig and other villages where the steamer called. On my first journey the Danish engineers, surveyors, and soldiers landed at the capital, and thenceforward until the s.s.

* See "The Cause of an Ice Age," by Sir Robert Ball, LL.D., F.R.S. (Kegan Paul & Co., 1891.)

"Thyra" got back to Leith I had a cabin to myself. In 1896 the captain of the s.s. "Laura" found the new lighthouses of great service; the lights are clear and can be seen for a long distance.

Having taken with me in 1893 a barometer, thermometer, and compass, I commenced taking the temperature of the air and the sea water, and noting the direction of the wind, with a result that, to my mind, proves that the temperature on the coasts in these high latitudes is not so low in the autumn as has been generally supposed, probably owing to the action of the Gulf Stream. My first observation, taken on the 14th of September, in Thorshavn Bay, is—

Therm. (Fahr.).	Barom.	Wind.
Air, 59°. Water, 51°.	29.27.	N.



FARØE FISHERMAN, WESTMANNHAVN.

I usually took my observations about 8 a.m., and lowered my thermometer between two and three feet into the sea or the fjords. When the sea was very rough, my friend the mate used to obtain for me a large bucketful of water. Winters in Farøes are, as a rule, very mild. The pastor and myself walked past the church, a wooden building not sufficiently attractive (with its interior walls painted in cerulean hues) to make me desire to see more of it. Soon after nine in the morning clouds commenced to gather, and in half an hour Thorshavn was covered with mist; then we returned to our steamer for breakfast. As we rowed across the bay my attention was drawn to a building that much resembled a cotton weaving shed; it had been a guano manufactory promoted by a Danish company; it had "not paid," and was now closed. Farøe folks very seldom emigrate. The Danish language

is taught in their schools, and in some cases English; the officials and schoolmasters are Danes. Leaving Thorshavn we passed out to sea between the island of Naalsøe (Needle Isle) and Strömøe; there is a natural tunnel through the former. Outside the islands the wind was strong, and we experienced a breezy night. Any one travelling in the Northern regions will do well to take with them a copy of the Marquis of Dufferin's amusing and instructive book,* which gives a graphic account of his experiences in the North Atlantic.

September 15th, 1893, was a bright sunny morning, the air very dry and most exhilarating. It was 4-25 p.m. when we sighted the south-east coast of Iceland. In the autumn of 1896, when the s.s. "Laura" left the north-west coast of the Farøes, the passengers saw to great advantage the rock scenery and precipices, which are surpassingly grand, torn, as it had been, by wind and water; the Slattaretind, near Eide, in Oesterøe (West Island), rises from the ocean to a height of 3,000 feet. I saw this coast in the late afternoon, not long before the sunset; the sky was an "angry" one, and the surge rolled amongst the rocks and caves with a noise like the roar of canons, or thunder, and the spray leaped up the basalt pillars, and over the quaint rocks pointing like spires up to the sky; this series of magnificent cliffs is in appearance ever-changing as the boat makes its slow way through the heavy surge. The cliffs at Myling, on Strömøe—the same island as Thorshavn is situate on—rise in sheer perpendicular height 2,500 feet. In numerous places are natural tunnels above the sea level; here live countless numbers of sea birds. It was a sight such as I have never before witnessed, and as we slowly left the rocky shores *en route* for the east coast of Iceland the slowly-fading hills, with the last light of day falling on them, was a scene that I shall ever remember.

It is difficult by mere figures to convey the extent or area of a country or district, or the height of mountains or cliffs. To those who have travelled in and around Scotland, the Orkney and Shetland Isles, and Ireland, and have gazed on the picturesque precipices on the coasts, I may, for comparison's sake, remind them that Fair Head in County Antrim is 636 feet above sea level, Main Head in County Donegal is 670 feet, and the better-known Slieve League in the same county is 1,500 feet; the summit of Croghaun in Achill Island is 1,700 feet, Cape Wrath in the north-west of Scotland is 600 feet above the sea; Ward Hill of Hoy in the Orkneys is 1,564 feet, and the west face of the cliff at Hoy, Murray† says, is "the most glorious sea front in Great Britain, extending for a mile at an elevation sheer from the water of 1,200 feet." The headlands on the west coast of Farøes, on which the Atlantic gales hurl the waves 300 feet aloft, extend for many miles. If any of my fellow-members are, as was "Doctor Syntax," in search of the picturesque, let them travel to the western coast of Farøes—

"When descends on the Atlantic

"The gigantic

"Stormwind of the equinox."—*Longfellow.*

* "Letters from High Latitudes," John Murray.

† "See 'Handbook for Travellers in Scotland,' Published by John Murray, London.

The name of Iceland is hard and harsh compared with "Snæ-land" (meaning Snow-land), the original name of the island. The Scandinavian name for this "little white spot in the Arctic Sea" is Ísland (Eðsland—"s," not "z"). Every one who has written about "this fragment of earth, white with snow, black with lava, and yellow with brimstone," describes *in detail* how it was formed, and they all differ as to the details; but whatever was, or is, the formation of the foundation strata, whatever was the date, and the nature, of the upheavals and subsidences, and the effect of glacial action and other powers of nature, all travellers seem agreed that the island struggled into existence against the pressure of one of the world's deepest seas, reached the surface, and ultimately maintained its own against ocean, iceberg, and earthquake, and established itself over some 40,000 square miles. The Dane's description of the origin of the island has at least the merit of being terse and original: "After the Creation, Satan was rather taken aback, and he thought within himself, 'I will see now what *I* can do!' So he toiled at creation, and lo! he turned out Iceland." The Icelfander is justly proud of his old home; one of his favourite sayings is—

"Ísland er hinn besta land, sem Solian Skinnar uppa."

"Iceland is the best land, on which the Sun shines."

Turn the "k's" into "h's," introduce a Latin word or two, and it will be found this Icelandic is not so very different from English. The island is about 500 miles from the north-west coast of Scotland; it belongs neither to the old or the new hemisphere, and has been described as "a little continent of itself." About one-sixth larger than Ireland, it lies in the North Atlantic, between the 65th and 66th parallels of latitude, just south of the Arctic Circle. Lying, as it does, in mid-ocean between Europe and America, and at a distance of more than 1,000 miles from its foster-motherland, it is not easy to say to which continent it belongs. Reference to the map shows that the island is not unlike a heart in shape; except on the south-east its coast line is cut into by fjords and bays. Húnaflói and Breidifjörður in the west are separated only by a narrow neck of land; both of these inlets of the sea are of great size, the former being 27 miles across its entrance. The most remarkable features of the island, after the volcanic, are these fjords (or friths). They may be divided into two classes, the firths proper, and the viks and vágurs (bights and bays), mere indentations of the coast; the former extend for a considerable distance into the land between precipitous mountains, the tops of which are snow-covered, or continually veiled in mist, which the sea breeze brings up. The noblest of these bays is the Isafjörður in the north-western peninsula, it being 52 miles long. It winds between magnificent mountains rising in inaccessible walls of basalt many hundred feet above the water's edge. Ten lesser firths open out of it, piercing through the mountains and stretching to the bases, or roots, of the great jökull—*i.e.* ice mountains—of Dranga and Glamn, both of which are shown on all maps of Iceland.

The Icelandic mountains are divided into two classes, the fells and the jökull; the former are (for the most part) free from snow during the hottest portion of the summer, but the latter are ever covered with

ice. The fells are inferior in elevation to the jökulls; some of them, as well as the jökulls, are volcanoes. Hecla, for instance—the mountain best known to most people—is a fell, 5,108 feet in height; while the terrible Skapta—lying to the east of Hecla, longitude 18 deg.—is a jökull.

In addition to Isafjord, the other magnificent fjords are Eya and Skäga on the north and Arnar on the west, each of which have marked and distinct characteristics. The bays are very extensive; the noble Faxafjord in the south-west (65 miles across) opens between Cape Reykjanes and the sugar-loaf of Snæfell; further north, Breidifjord, studded with innumerable islets, the home of numberless eider and wild duck, is 45 miles wide, and Hunafloi on the north coast, into which the Arctic Sea rolls without a break, is 46 miles long. Other bights on the north coast are Skjálfandi (or Shivering Bay), Axar, and Thistil Fjords. The south coast is unbroken by a bay or a fjord capable of sheltering even small vessels, and the interior is almost uninhabited, the only exception being where tongues of extinct lava streams have run for a long distance, and where, on this so-called "hraun," vegetation is developed, first as isolated streaks of grass, and after a time as one uniform covering of herbage. Of course, in a country where volcanic fires and frost reign supreme agriculture is almost impossible; the scanty vegetation reaches its highest development in crops of grass, and these, in the absence of cereals, form a most important item in rural economy; and on the greater or lesser success of the hay harvest depends the earnings of the peasant or proprietor, whose wealth may be estimated in accordance with the number of sheep, cattle, and horses he can raise and support. From 600 to 900 sheep represent exceptional wealth, and 100 sheep, 2 cows, and 12 ponies about 13 or 14 hands in height—for horses such as we have in England are unknown, and could not live in Iceland—mean a fair competency. The salting of fish and meat has of late years become of great importance; the natives *export* the produce, as well as whale and shark oil, whalebone, seal and sheep skins, wool and feathers; of the *imports* I will write later on. On the 15th of September, 1893, I took my observations in the North Atlantic, with the following result:—

Therm. (Fahr.).	Barom.	Wind.
Air, 58°50'. Sea, 45°.	29°04°.	N.-E.

Herr Bache, one of my fellow-passengers in 1893 (a Danish trader, who lives on the east coast during the summer months), showed me a *fac-simile* of one of the Icelandic sagas. The original of this document was shown in the Chicago Exhibition, or, as the islanders call it, "Chicagosýningarinnar," which show my friend the pastor attended as a delegate. It was a frosty evening as we made our way up the *Reydarfjord* (Whale Frith), passing many native fishing boats, the occupants of which were hard at work. The Northern Lights, or Aurora Borealis, were to be seen, but the display could not be compared with what was seen by us off the north coast of the island. Between 9 and 10 p.m. we ran into a small inlet, and anchored off the trading station of *Eskifjord* (Ash Frith).

September 16th. As a rule, I took, as I have mentioned, the temperature of the water between two and three feet below the surface,

so that I might avoid the surface water coming into the fjords from the land.

Therm. (Fahr.).	Barom.	Wind.
Air, 39°. Water, 41.50°.	29.12°.	N.N.W.

When, in the morning, I came on deck I found that Eskifjord was a (comparatively speaking) narrow fjord, on the north side of which was a factory or store; the second engineer was fishing with a long line for small cod, and met with a good deal of success; the hook he used was a large double one, made of metal, and very bright, and had no bait on it. He let down a line from 20 to 25 feet, and then he kept drawing it up quickly for a foot or two; so far as I could make out, the fish came to look at the bright object, and were secured during the inspection, and very few of them were hooked in the mouth; we had some for breakfast, and very fresh and tasty they were. The morning was overcast, and at times a little sleet came down. Above us towered a mountain some 3,000 feet high, called *Holmafjall*, slightly covered with snow. On the northerly side the range of mountains is called *Heide*; it is broken in many places, and numerous cascades pour over the precipices above the Handelsted (or trade settlement); the rocks are basalt—i.e., of volcanic origin—and rise up from the water in steep terraces. Going on shore after breakfast with the pastor and his daughter, I could not help noticing how much water there was in the bottom of the Icelanders' boat; my first impression of the native boatmen was that they were lean and very wanting in colour. Once landed on the island, I went, with my friends, to call on Carl D. Tulinius, a Dane by birth, the Swedish and Norwegian Consul, and the principal merchant at Eskifjord. We met with a hearty welcome. My friends and our host were related in some way; in fact, the more I saw of the Icelanders the more convinced I became that every one was some one else's cousin! I was introduced to the wife, three sons, and one daughter: the men were smoking strong cigars. The temperature of the dwelling-room, heated by a stove, was over 70 deg.; it was most comfortably furnished; there were bright flowering plants in the window-sills, and beyond the room in which we were entertained was another sitting-room; the dwelling was built of wood. Hospitality abounded, and we regaled ourselves on coffee and biscuits. Herr Tulinius is a tall man, certainly six feet high; and he looked taller in the low rooms; purposely not high with the object of saving heat: in fact, I was at first deceived as to the stature of the natives, until I noticed them out of doors. I now for the first time saw a "hwfa," or female head-dress, which, in a cold country, has every defect but ugliness; the ladies of the house each wore one.* It is a flat cap, or circular piece of cloth or silk—always black. The women place it on the top of the head. Attached is a long black tassel of spun silk, which hangs down as far as the shoulders, from a silver or gilded cylindrical ring or ferrule an inch or two in length called "hólkur." Some wear the tassel on the right side, some on the left; others place the cap on the top of the head, and others on the side in quite a jaunty style; but I could not

* Hwfa is spelt in Icelandic "hwfa," but pronounced "hwa" ("u" like "oo" in "good"). Wool yarn is the material used.

make out that the wearing it in either way had any particular significance; it is kept in position by hairpins. I brought a new cap, or "hwfa," home with me; it was made for me in Reykjavik; it gives no protection against cold. The everyday dress of all the women—and pray understand that throughout Iceland classes and grades of either sex *do not exist*—is black wadmal, or cloth, and very sombre it looks. The shoes, "Islandsk skór" (Iceland shoon), are made of sheepskin, and are similar to Farøe shoes. I brought back a pair of men's shoes and a pair of children's



"HWFA."



SHOE.

shoes: they seem to be fashioned by taking a square piece of skin longer and broader than the foot to be covered, making an indentation at either end, and then sewing the ends together; thus the skin assumes the form of the foot, except at the toe, where it is pointed: these shoes, lined with coloured flannel, are in many instances attached to the feet by two leather thongs, which are wound from side to side across the instep, brought round the ankles, and tied to the leg. I brought back a bodice or waist-piece (*upphlutur*) made of black wadmal, very elaborately worked with flowers and figures, and fastened with a silver bodkin in front, which laces the sides together,

passing through some half-dozen silver ornaments or clasps; this is, I fancy, for evening dress. The pastor's small daughter, Norah, procured it for me in Akureyri; it has the merit of being "gammal" (Icelandic)—*i.e.*, well-worn, or old—but the colours of the embroidery are well preserved, and show much taste. The native shoes, which resemble our slippers, seem ill-adapted for a country where roads are few and far between, and where the few ways are strewn with lumps of lava; I saw very few imported boots and shoes. The stockings are made of thick grey worsted. The women's hair is worn most neatly, being smoothed down on either side of the brow, and plaited at the back in two long queues; these, when the women are in the house, are looped up and fastened to the crown of the head so as to form cross festoons; the general effect is very pleasing. When outside, the hair is generally gathered up under the "hwfa." I have never seen one Icelandic woman with her front hair à la monkey-fringe. When walking, or out of doors, most of the women muffle up their heads in



SIDE-SADDLE.

grey-striped or chocolate-coloured shawls, almost entirely concealing their features. As there are no vehicles, the women ride a good deal; in many instances I saw them bestride a pony in masculine fashion, but ordinarily they use a side-saddle—like an arm-chair; when riding they sit sideways at an angle with the pony, and they generally wear a many-coloured scarf across their chest like a double shoulder belt. All ladies before visiting Iceland should read Mrs. Tweedie's interesting work,* in which she deals with the controversy as to women riding astride. The circular support for the back must save a great deal of fatigue; over the back is hung an elegant coverlet exhibiting fine specimens of embroidery. Herr Tulinius had visited England, and spoke English fairly well; he said the herring trade, on which the Icelanders on the east coast so much depend, had been bad this season. In his house-room was a piano, and on the walls

* "A Girl's Ride in Iceland," by Mrs. Alice Tweedie. 2nd Edition, Published by Horace Cox, 1894.

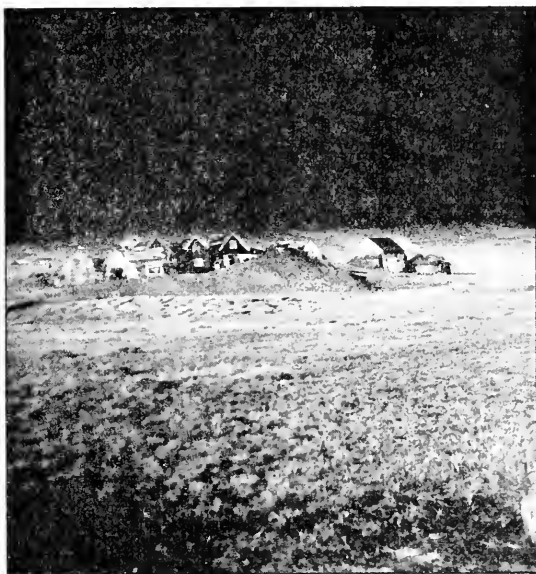
were several photographs and pictures; amongst the plants in bloom I noticed mignonette and roses. Eskifjord is never ice-bound. Herrings and codfish in various states of decay were lying about on the shore, and, in fact, everywhere; the heads are collected in heaps, and used as manure for the grass, grazing on which were ponies of all colours; these are quite tame, and will allow any one to stroke them. Some few stone fences show different ownerships. In the small gardens attached to the houses grow turnips, and no other table vegetable is to be seen there. Over the warehouses and many of the dwellings waved the Danish flag, with its white cross on a red ground, in honour of the arrival of the mail boat s.s. "Thyra" (pronounced Tērer). We called on the doctor, who did not talk English, and afterwards on Herr Magnusson (a Danish merchant); his manager, Herr Müller, lived in the house adjoining the ware-rooms; his wife was a very comely middle-aged matron; her eldest daughter had learnt English at school, but was diffident about talking at first, though her pronunciation was very good; her brother was being educated at the Latin School at Reykjavik, and returned there with us. He said he was pleased to have the opportunity of talking with an Englishman; when he replied to me that the "twenty and sixth" was the day on which the college re-opened, his elder sister at once called out, "Oh! you dunce; it is 'twenty-sixth.'" After that I had a long talk with her, and she showed me chalcedony, zeolites, agates, and many minerals her father had gathered in the immediate neighbourhood. Afterwards I, at her request, wrote my name in her "birthday book." Here we were regaled on soda-water and brandy—not Icelandic, but French. The temperature in the rooms was over 70 deg. Fahr., and the atmosphere was so close (because they have no ventilators) that I was glad to get out into the open air after partaking of the hospitalities so freely given. The people seemed much surprised that I did not take sugar; they eat a great deal, as do all dwellers in cold countries. We set sail during the evening, taking with us not only the mails, but many passengers of both sexes; the women were most of them going to the west coast for the purpose of helping in the fish drying. For supper this evening the steward gave us halibut fins (amongst other things), and very nice they were. We saw but little of *Reyðarfjörður* as we passed out to sea, but going northwards were very steep cliffs. The atmosphere is, generally, misty on this coast. We entered one of the numerous fjords—lighthouses there are none on this coast; in fact, there is only one in all Iceland—and anchored for the night in Seyðisfjord.

September 17th. Sunday morning. Dull.

Therm. (Fahr.).	Barom.	Wind.
Air, 45°. Water, 43°.	29.03.	N.E.

From the steamer a group of grass-roofed cottages looked most picturesque. I obtained a photograph of them on my return journey. This is a charmingly pretty fjord. I saw it to great advantage on the return voyage. On its north bank lies the fishing village of *Dvergasteinn*, consisting of trading houses, dwellings, an inn, and last, but not least, a very nice-looking church, at which I told the Prestr I should like to worship. "Oh!" said he, "there will be no service to-day, because the Thyra has come in." And so it was at all the stations or settlements

where we lay on Sunday. The day was observed as a high holiday, the natives donned their best bibs and tuckers, and promenaded up and down the deck of the steamer. On the south side of the fjord are the stores of the merchants, and the fish stores erected by a community called the Normal Company. This company, which was established with Danish capital, has now ceased to exist; it was this body who established the guano manufactory in Thorshavn. These buildings, painted bright green and red, standing at the water's edge, light up the landscape, and form a contrast to the black roofs. Down the hillside terraces course numerous streams, and in many places are very picturesque cascades. I landed with the Prestr and his daughter, but they left me to call on some friends. Again, the native boat which carried us on shore had more



GROUP OF DWELLINGS, SEYDISFJORD.

than a foot of water in it! The men and women looked to me pale and ill-fed; the children, in their Sunday attire, looked very bonny and nice, and most intelligent. I was surprised to see so many geese (domestic ones) swimming about in the fjord; there were innumerable eider duck—for the most part these latter kept near the shore. The hill to the north of the village is extremely steep; not many years ago an avalanche swept away a great part of the place. The cottages have been rebuilt where those that were destroyed stood. Some one, wanting to give a graphic description of Iceland, said, that there "no man died in the same house in which he was born: everything is in a process of continual destruction by the elements." I slowly wandered up the basalt walls that come nearly down to the water's edge, till, according to my barometer, I was some 600 or 700 feet above the fjord. On the topmost scree on the south side there was snow, from which came

tumbling down many waterfalls. I gathered a large bunch of wild flowers, which I dried in an informal manner, and brought back to England with me. They are now in my cabinet, many of them still retaining their bright colours. The water on the north side of the fjord is very shallow, and near the edge were two large fishing-nets, buoyed up with corks and green barrels. They enclosed an area about 40 feet broad by 120 feet long; inside were a closely-packed mass of herrings, and throughout the enclosure were to be seen—so shallow was the water—peeping out the tails and fins of the fish, which had been there for several weeks, and were used as bait for catching larger fish. Some could not keep beneath the surface, and the backs of many had on them scars, or marks of disease; the fish varied much in size.

In nearly every house I visited in the island is to be seen a card commemorating the restoration of the Icelandic constitution in 1874—the year when *Ingólfe* and *Leifr*, the first permanent settlers of the Norse race, arrived at the island, and settled in the south—and the date of 1874, when the present King of Denmark visited the island, and presented to the people their new constitution, these two dates being joined together (in happy unison) around the old Icelandic name so loved by its people—*Eld Gamla Isafjöld* ("Fire old," or "as old as the Fire," icefield).*

Luther's portrait is common in the houses, but the one most often seen is that of a grey-headed old gentleman, *Jón Sigurdsson* by name, through whose exertions the constitution was restored in 1874. Before starting off the captain always sounded three whistles, and it sufficed if the passengers left the shore when the second whistle sounded. We set off again about 3-30 p.m. on the day of our arrival, taking with us several native women and a few men; and, after passing some very fine coast scenery, after sunset reached *Vopnafjörð*.† Here Herr Bache landed: he pressed me very much to call and see him at his house on my return journey, which I did.

September 18th. The morning was again dull and overcast.

Therm. (Fahr.).	Barom.	Wind.
Air, 48°. Water, 44°.	29'02.	N.E.

We left *Vopnafjörð* at 7 a.m., and kept well out to sea, as there was more wind blowing on to the shore than during the two last days. We saw a great many gulls and sea-birds about to-day; many of them were kinds that I had never before seen. The Captain, the Prestr, and myself had the breakfast-table to ourselves. The first land we sighted after getting well away from *Vopnafjörð* was *Langanes* (long nose),‡ the north-east extremity of the island, which we rounded at 11-30 a.m. It has an abrupt face, about 200 feet high, and is the resort of numbers

* *Eldur* means fire. *Eldgammul*, as old as fire, or very old. *Eldgata* is the accusative case and feminine of *Eldgammul*. *Fjöld* is an old poetical word for land or country. *Isafjöld* is therefore the same word as *Island* or *Land of Ice*.

† *Weapon Firth*, this is the same word as the Anglo-Saxon *Wæpen*, as used in the English word "*Wapentake*" (literally, weapon-grasping); this division of certain English counties is supposed to have been so called because the inhabitants within such divisions were taught the use of arms.

‡ *Nes* (Icel.) means a point, a headland, or naze. *Longness* is perhaps the best equivalent in English of *Langanes*.

of sea-fowl. The neighbouring country bears a flat and desolate appearance; on the coast there are one or two huts, the only evidence of life. On the shores of, and inland from, *Thistilfjörð* (Thistle Firth) there are one or two very fertile farms. Our crew, all told, numbered 26, and for the next few hours they were busily occupied, for a gale sprang up from the north so soon as we got west of the *Nes*, and it was not long before it became a great storm, and later on a hurricane, that we afterwards ascertained did a great deal of damage all over Iceland. The next port at which we had to call was Akureyri, in *Eyafjörð* (Isle Firth), longitude 18 deg. The Prestr and myself were the only passengers who that day and evening took meals or were not sick in the cabins. It was the biggest storm I was ever in. I sat up all night watching the enormous waves, amid which our boat danced like a cockle-shell. We shipped a great many seas, and I found out afterwards we were lying just south of Grimsey Island, which is on the Arctic Circle, unable to enter *Eyafjörð* until it was light. It was a weird night; the Prestr succumbed about 1 a.m. Some of you may be reminded of the concluding paragraph of S. L. Clemens' graphic account of his voyage down the Neckar on a raft *: "The captain said he had been a mariner for forty years on the Neckar, and in that time had seen storms to make a man's cheek blanch, and his pulses stop, but he had never seen a storm that even approached this one. How familiar that sounded! For I have been at sea a good deal, and have heard that remark from captains with much frequency. We framed in our minds the usual resolution of thanks, and admiration, and gratitude, and took the first opportunity to vote it, and put it in writing, and present it to the captain, with the customary speech."

September 19th. About 8-30 we entered the mouth of the fjord. What a sight was our deck: one of the boats had been lifted off its davits, thrown on to the top of the engine-room, and one of its sides was stove in: a huge wave had burst in one side of the chart-room, smashing the windows, and damaging many charts: the iron stanchions and railings around the steamer were twisted like wire. There was not light enough to take a photograph of the deck when I came up to ascertain the temperature. It must be borne in mind that this storm occurred at the equinox; in July and August such gales very seldom prevail.

Therm. (Fahr).	Barom.	Wind.
Air, 35°. Water, 42°.	29.05°.	N.-E.

On my return to Akureyri the Prestr gave me a copy of his translation of "Hamlet"—"In memory," as he writes in it, "of the night of 19th September, 1893." On my asking him why the captain, who sat at the end of the table, always said to the guests, "*Velbekomme*," when rising after a meal, he said it was a Scandinavian custom, and the expression meant, "May you digest your dinner," or (as I remarked to him) "May good digestion wait on appetite." During the night the snow had come down, and the cliffs on either side of the fjord were covered

* "A Tramp Abroad," by Mark Twain. Chatto and Windus.

with it; but on the hills we could see numerous ponies feeding. Sleet showers continued until we reached the cheapstead of *Akureyri* (Acre Beach), at the south end of the fjord. This place is the northern capital of the island. When we had anchored, the passengers resolved to thank the captain for the able manner in which he had navigated the steamer during the storm. Several of those in their berths told me afterwards they thought they were going to end their days in the Arctic Ocean. Against my wishes I was appointed spokesman, and we all drank our skipper's health in a *very luscious* beverage the steward called "champagne." The captain seemed very pleased; he certainly had had a very arduous task. The word "cheapstead" is equivalent to our word "market," and the same word (*Kaupstadr*) is usually applied by the Icelanders to their trading stations. "*Coup*" (to cheapen) is common to all Teutonic languages; it is the same as our old English words to "chaffer," or to "couper," or strike a bargain. The native men here, I noted, looked well fed. Their hair is light and long; they dress in black and sometimes coarse blue cloth, putting their feet a great deal too far through their trousers; many of them wore peaked hats, such as do the members of the German bands who visit England.

Talking of feet reminds me of a curious Icelandic custom. I have mentioned that there is (as a rule) a foot or eighteen inches of water *inside* their boats; such was the case in the vessels at this northern capital of the island. On inquiring from Captain Garde and others how it was that the sailors did not keep their boats dry, I was told it was because they bought *cheap* boats. On my remarking to some natives it was bad economy to have wet boats, for some one had to be employed almost constantly baling out the water, and if they would keep water *inside* every boat, why did they invariably sit with their feet in the water? "Oh! that," said my informants, "is done so that the interstices of the woollen stockings which are always worn, may get filled up by the moisture, and then the cold wind cannot get through them." Well, I would not believe this for a long time, but both Danes and Icelanders repeatedly assured me it was true. I have often seen women walking through heaps of snow when there was a clear pathway, and they said they so walked in order to wet their stockings, and keep the cold out! You may imagine the state of their sheepskin slippers. No wonder the boatmen look solemn, not to say melancholy! We were too warm on board, for the saloon and cabins were heated with hot steam tubes connected with the ship's boiler, and the temperature inside was over 70 deg. Fahr. There is nothing the Icelanders like better than a hot, stuffy, unventilated cabin or room. The climate of the island is far less rigorous than a stranger would suppose from its latitude. Observations (particulars of which can be obtained at Reykjavik) show that at the northern capital, which we had now reached, the mean temperature for the summer is 32 deg. Fahr., and for the winter 20 deg. Fahr. At Reykjavik the annual mean is 39 deg. Fahr.—of the summer 53 deg., and of the winter 29 deg. The air is, as a rule, marvellously clear; distant objects can be seen with extreme distinctness. My friend the Prestr was, of course, pleased to reach his home. He pointed out to me his house, near the church, and said he should very much have liked

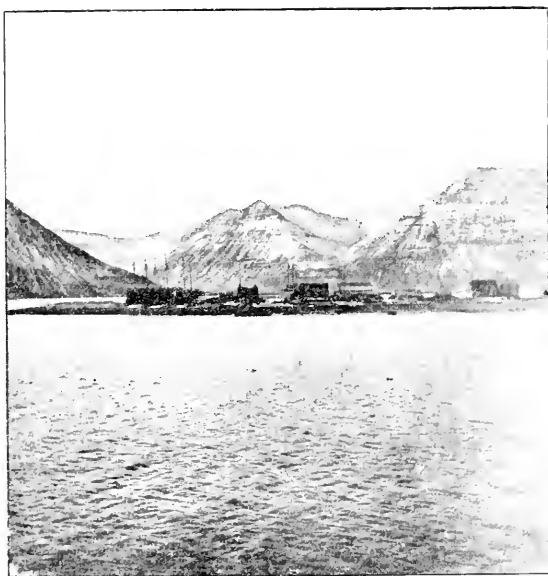
to ask me to call there, but he expected to find in it one more little Icelander than when he set out for Chicago, and he begged I would call on my return journey. During the early morning at sea my attempts, by means of my compass, to make out how we were heading proved futile; the instrument, in these parts, is not so much to be relied on as further south; there are many magnetic rocks off the north coast. Every one has heard of the *magnetic variation of the compass*; in these northern latitudes it is very great, being as much as 43 deg. west on the extreme west of Iceland, and 34 deg. west on the east coast—that is to say, when you are in the west of Iceland you have to turn your compass box until the north end of the magnetic needle is over north-west, and then the north point on the "card" would be pointing *true* north, and, as a consequence, all other points on the card would also indicate *true* bearings. If you are at the extreme east of the island, the north end of the needle must be placed directly over north-west by north, and then all the points marked on the card indicate true bearings. The day was dull and misty. I spent a couple of hours in Akureyri, for the purpose of stretching my legs, but found little of interest; there were thousands of eider ducks about, and the whole ten of the Prestri's family on the beach.

September 20th. The atmosphere was still thick, there had been a sharp frost in the night; the ship's ladder and ropes attached to it were thickly iced over, as I found when I descended to take the temperature of the water, about 9 a.m.

Therm. (Fahr.).	Barom.	Wind.
Air, 34°. Water, 44°.	30°.	N.

Every one assured me that in these northern latitudes the barometer is of little or no use as a foreteller of the weather, and that was my experience. During the night the s.s. "Monarch," from Newcastle-on-Tyne, had arrived in the fjord. The young Englishman who at first shared my cabin had not up to now ventured off the "Thyra." I had once or twice inquired from him what was his destination, but he always said he was not sure. He told me he believed his "pal"—the veteran—for they were more like a couple of friends than anything else, had a gun amongst his "*impedimenta*," but this turned out not to be the case. I told him I should go on board the "Monarch," and see if I could learn any English news, as she had come direct from England. On my asking him to accompany me, he embarked on one of the ship's boats, which the captain said I might have. *En voyage* there was a horrible stench, which I subsequently discovered came from a shark-oil factory, over which the wind was blowing. The "Monarch" is a large vessel, and it was no easy task clambering up her side by the old-fashioned rope ladder, though I had more concern for my companion than myself. We saw no one on deck, or, rather, on the decks, for there were seven tiers of decks arranged for carrying sheep. In the cabin we found the captain (a Northumberland man) and his mates at their mid-day meal. They were surprised to see two fellow-countrymen, welcomed us warmly, and asked us to join in their repast; and very acceptable we found a basin of hot pea-soup. They brought no fresh news from England, except that the coal strike had not yet ended; they

were expecting to carry back with them 7,500 sheep to Liverpool, *viâ* Stornoway, and the captain said if they had as rough a passage home as they had out he did not expect to land them all alive; in fact, he thought it very likely that the upper tier would be buried in snow! He intended to set off in two days, and said he would take letters to England for me, an offer of which I availed myself, and then bade him "*Bon voyage.*" It was at this place that I met Professor Ólsen, of the Reykjavik Latin School, and the Prestur introduced me to his oldest son—a lad about 17. Both the professor and the lad went in the "*Thyra*" with us. I learnt much (from talking with them) about the island and its inhabitants, who have preserved, almost unaltered, a tongue which is the parent of several languages of Northern Europe. Akureyri consists of rows of painted and tarred houses, standing on a



ÆYRI, ÖNUNDARFJÖRD.

swampy plateau. Not far from the landing-stage is the house of the Lieutenant-Governor, in front of which stands the largest tree in Iceland; it is between 20 and 30 feet in height, and is a mountain ash. There are four or five other trees of the same species in the place. Some bright-coloured flowers had suffered from the frost. In the stores I noticed no home productions. The Greenland ice often remains in this fjord until the middle of the summer. Throughout the rest of Iceland there are only shrubs; there are no forest trees. There is a place near Akureyri, named Oddeyri; it is, for all practical purposes, a part of the former cheapstead, and the houses are built on a bank that runs out into, and nearly across, Eyafjörð. Oddeyri is the Icelandic word for promontory. In all the fjords in the north-west there is a bank of sand and stones, which forms a natural breakwater. I took a

photograph of such a bank, the Icelanders call it an "eyri"; I took the picture at Onundarfjord, on the north-west coast, from the steamer. There are houses and stores built on the eyri, and on it can be seen the fishing boats, drawn up for the winter. Our boat had come up the fjord (which can be seen behind the houses), and was safely anchored inside this natural harbour. The cliffs on the far side of the water give a very good idea of the general character of the mountains in the north of Iceland. I took this photograph on the 7th of October, 1893, when there was snow on the upper part of the cliffs. These eyris, or flat spits of land, stretching out into the fjords, date from the time when Iceland was covered with a mantle of ice; they are in the nature of moraines, such as are seen adjoining glaciers—a mass of earthy sand and stony matter, which the ice has driven before it when the sites of the present fjords were filled with great glaciers; and, no doubt, this *débris* assisted in excavating and deepening the fjords. The mass originally formed part of the mountains bounding the valleys along which the glaciers flowed, and found a temporary resting-place on the surface of the ice with which it was carried along; when the ice melted the *débris* was left as a large mound on the bank. Glaciers are for ever moving, and there can be little doubt that the materials of which these "eyris" consist had been carried in the ice for many years, and were eventually deposited at considerable distances from their original home. There is a shark-oil factory at Oddeyri; I set off with my young English friend to inspect it, but when we got to within two or three hundred yards of the place we had to turn back, the odours were too pungent! There are only seven or eight hundred folks living in Akureyri. Their houses are built close to the edge of the fjord, which is only a little over a mile wide at this point; at its mouth it is ten miles in width; in length, it is thirty-eight miles. Each store in the settlement is a sort of "omnium-gatherum," where can be procured corn, brandy, rum, beer, fox-skins, eider-down, ready-made clothes, saddles, crockery, ironmongery, boots, hats, and provisions.

September 21st was a bright, sunny morning, as often happens in all parts of this planet after storms. This day (as will be seen from my observations) the temperature of the air and the sea did not differ—

Therm. (Fahr.).		Barom.	Wind.
Air, 43°.	Water, 43°.	30'4°.	S.-W.

Shark oil is chiefly used by the Icelanders for lighting purposes, but most of it is exported to the continent of Europe and England, and there is mingled with the oil extracted from the liver of the codfish, and without doubt a great portion of "cod-liver oil" is, in reality oil of the shark. We set off again to-day along Eyafjord. The mountains on the west side rise abruptly, those on the east slope gradually down to the water's edge; beyond are to be seen flat-topped hills, or rather mountain ranges. We called at Hrisey (the Bush Isle), and Professor Olsen drew my attention to a *fresh-water* pool, separated by a low bank of sand and pebbles from the fjord. I took a photograph from the steamer while we were waiting opposite the island, and with a good magnifying glass the situation of the bank is easily seen. The buildings are connected with a Norwegian company, who carry on a herring

fishery, and it is said to be a prosperous concern. When we again reached the sea we saw some whales spouting, but there are not so many about at this time of the year as there are in the early summer.

Several lads, who were going to the Latin School, at Reykjavik, joined the boat at Akureyri, as well as a number of schoolgirls. Two fat geese waddled about the lower deck, and their presence reminded me that Michaelmas Day was near at hand. We had not proceeded far up the fjord before a loud cackling was heard, and (as if by arrangement) the geese both flew overboard, and, after a good flight, joined the numerous eider ducks that were swimming about. Though we were behind time the captain stopped the vessel, and, much to our amusement, the two mates chased the geese for over half an hour, and at last captured them! We then discovered they did not belong to our steward, but were going to Isafjörd. I told the captain I had often heard of a "wildgoose chase," but I had never before seen a *tame* one; for the rest of the journey the truants were penned up. We passed several boats, the occupants of which were fishing for herrings. They had a knife (curved) at the end of a stick, and as their boat was propelled through the water they speared the fish in a most skilful manner. Kaldbakr, the mountain on the east side of the fjord, near the entrance, is 3,000 feet high, and is always covered with snow at the summit. We now had delightful weather after the storm, and it continued until we returned to this part of the island in October. It was a charming sail along the coast to Siglufjörd (Sail Firth); the mountains on the north coast are shaped like the pyramids, and we passed a succession of peaks and ravines, alike and yet varied in form and colour; out to the north were the dancing waves, lighted up by the sunlight. It was about four o'clock when we turned into the peaceful waters of Siglufjörd. Lying under the crags are the stores and dwellings of the merchant who lives there, and a little church. Rich, green sloping pastures come down to the water's edge; above were abrupt ledges of rock outlined with fresh snow, and down the mountain sides are many waterfalls. Most of the fishing boats were drawn up on the shore for the winter; inland there are several farms, the roads to which lie over the mountains. The contrasts between the rich brown rock and the bright green turf are very beautiful. The scene at sunset was one of the finest I ever gazed on; the fresh, white snow on the mountain tops had quite a pink hue. There was one boat with its flag half-mast high. It turned out that it was an English fishing vessel from Grimsby; it had been out in the storm, and it was with the greatest difficulty the men managed to get into this fjord; the mate was drowned in his cabin; the bulwarks were carried away. We left Siglufjörd at 7-15, taking with us its Prestr, who was going to Reykjavik. He was well dressed, but wore his hair—and he had a great lot of it—longer than an artist. When he was at meals he sat next to me; fortunately he was very sea-sick, and was therefore seldom at the table; he used his fork to comb his moustache, and altogether was the most uncouth black-coated man I had ever met. This was my *first* experience of close contact with an untravellered Icelander; I got more accustomed to the islanders' ways as the weeks wore on. He was very free from prejudices, and played cards with his fellow-countrymen on Sundays, and, though only about 30, had a thirst that an old toper might have envied!

It was a fine sight seeing the moon set about 9-30. I did not again see the moon until the 21st of October, the day we sailed from the east coast of Iceland homeward bound. Now we saw the Aurora Borealis every night. I was told by several folks that I saw these northern lights to great advantage; they are best seen before, and after, stormy weather; the display, as a rule, commenced a little before nine, and lasted for an hour. In England, during the autumn, we sometimes see what are termed northern lights—sort of streamers of light above the horizon—but the Aurora, as seen north of the 65th parallel, is not at all like what we see here. The brilliancy and grandeur I cannot pretend to properly describe in words; the usual commencement is a shooting across the hemisphere of a stream of light; this dances and runs about the sky in a most extraordinary manner, with a quivering or trembling; then the bright light takes the form of a curve, or arch, stretching across the whole heavens, and next branches out, contracts, and expands by turn: there is always movement and change; the light is a dim sort of yellow, and generally appears first in the north-east. The finest display I saw was when I was in Reykjavik; then the luminous streams took the form of an umbrella, all radiating from the zenith, forming a sort of dome. Dr. Ólsen and the captain said it was one of the finest Auroras they had ever seen. Now we passed out of the Old World, and found ourselves in the western hemisphere. It is the wonderful *atmospheric* effects which light up and make charming the Icelandic landscape. There is much variety in the lights in the sky, and the snow-clad ranges of mountains are most picturesque.

The steward (*Hoemester*, he is called in Denmark) had bought a lot of mutton in Akureyri, and he and the stewardess (*Yomfru*) busied themselves on deck cutting it up, salting it, and putting it into barrels—a cold job. I tasted some of this food one day, and did not at all like it. A native came on board at Siglufjörð with a pipe, the stem of which was $3\frac{1}{2}$ feet long. At the various places where the steamer called we, of course, saw much of the natives; the men kiss each other when they meet; there are no grades or classes, all are equal, and they think nothing of coming up to a stranger, and shaking him warmly by the hand, as if he were an old friend; and they like “rubbing up” against you! In build the people are about the medium height; they are mostly pale-looking, with blue or grey eyes. The girls have good figures, and hold themselves very upright; their features are not regular, and as they grow into women, for the most part, they become plain and uninteresting-looking. All Icelanders are phlegmatic, conservative to a fault, and very indolent and slow. One of the features of the island are the ponies; they stand about 14 hands high, are strongly built; with short, sturdy legs, and large solemn head, with a sort of beard under the chin; short neck, with a thick, upright mane. They wander about everywhere, and are very lively and persevering; in breaking them in the natives take care to accustom them to a short, easy amble, at which they run along at a great pace. They will go six hours a day without food. As they spin along they keep their heads towards the ground, observing it intently, so that they very seldom trip, and never fall; when they see a crack or hole in the lava they swerve rapidly and avoid it. They are left to shift for themselves during the whole of the winter. Their price is about £5, but, of

course, it varies from time to time; they will carry from 16 to 20 stone weight the distance of a *Thingmannaleid* in a day. As there are practically no roads in Iceland, except close to the settlements, there are no mile posts, and the only measure of length in the country is the journey in one day of the Thing-man; that is, the member of Parliament, and this comes to about 25 English statute miles. When the day's journey is over, the pony is hobbled, so that he may not wander far, for it must be remembered that there are no such things as fences in Iceland. Professor Olsen showed me some hobbles he had bought in the north-east part of the island, made from the root of a willow tree; they will not stretch and get loose, like those made of twine.

September 22nd. We went up the *Skagafjörð* (Shaw Firth)* during the night, and in the morning were off *Saudárkrókur* (Sheep-water Crook), or sheep-river's crook.

Therm. (Fahr.).	Barom.	Wind.
Air, 51°. Water, 45°.	30'1.	N.

Rising early this morning, I witnessed some marvellous cloud effects—

“Ere the moon the East had crimsoned,
When the stars were twinkling there;
(As they did in Watts's hymn, and
Made him wonder what they were.)”

I was on the shore with my young English acquaintance by eight o'clock. We took some sandwiches and eggs with us. An English steamer (“The Creole,” of Newcastle) was anchored here. She had come for sheep. The place was full of them and farmers, and we met several flocks of sheep as we walked along the valley of *Hjeradsvötn* (the Waters of the District). The Prestr's son wrote down and explained to me the names of the various places, and he was only too glad to talk with an Englishman, as, after he leaves the college, he might possibly be a guide for a year or two. *Saudárkrókur* consists of an inn, some stores and warehouses, and a church. Icelanders are very proud of the latter, because it is built of stone. I peeped inside it; it is coloured red and blue in a most gaudy manner. Above, on a hill some 300 feet high, is the cemetery. I noticed the one at Akureyri was in a similar position. We clambered up through the frozen snow and loose shale, and from the graveyard had a grand view, looking seawards. Away out in the fjord lies the island of *Drángey* (a lonely rock, reputed to be a petrified giant), by the side of which soars a lofty pillar, or rock, of the height of 500 feet, looking like a ship in full sail; it is impossible to ascend it without a ladder. Here, in olden times, lived Grettir the Strong†: his enemies time after time tried to entrap him in vain, till the thrall who was guarding the ladder slept, and a boatload of men ascended Lonely Isle—that is the meaning of *Drángey*—and slew poor Grettir, who, by-the-bye, was a brigand, or viking. A “viking” was a pirate chief, from among the Northmen. The term differs in meaning from

* *Skaga* means a large flat naze between two firths or seas.

† See “Iceland; Its Scenes and Sagas.” By S. Baring-Gould, M.A. Smith Elder & Co. pp. 246 et seq.

Sea-king; the latter was a man connected with a royal race, who, by right, received the title of King so soon as he took the command of men, although only of a single ship's crew. Vikings were merely pirates, deriving their name from the *vicks*, *wicks*, or inlets on the coast in which they harboured, with their long ships or rowing galleys, which, to this day, form the model of Northmen's boats. They say in one Saga that on a certain Christmas night Grettir's fire went out, and having no means of relighting it, nor boat in which to row to the mainland, he swam from Drängey to the farm of *Reykir*, many miles away, to obtain a light, and succeeded in getting it. On the west side of the fjord tower the snow-powdered peaks of the Tindastóll (Spike-stool), rising almost sheer from the sea, and famous for the minerals, zeolite, onyx, chaledony, and opal found there; while opposite, towards the north, is *Málmei* (Sandstone Isle, Mineral Isle, or Ore Island), presenting on the west a perpendicular face, and sloping gently towards the east. Behind Sandarkrokur the hills are very bare, and look like a rubbish heap, but when examined, the stones are found to consist of purple basalts, and green and crimson minerals, mixed up with lava: all are mingled in picturesque confusion. The Icelanders have the greatest difficulty in frosty weather in digging graves in which to bury their dead, and also in getting the coffins up to the cemetery: a funeral takes hours sometimes, the bearers often tumble. They dare not bury their dead on the flat plateau below the hills, for fear floods should wash the bodies out of the graves. There is a track or path along the District of the Waters Valley; there had been a sharp frost during the night, which made it slippery work walking. The *Hjradsvötn* is one of the largest of the northern rivers, and its valley is one of the most thickly populated. We passed several farms, and as we made our way south had in view the snow-clad mountain, *Málifellshnúkur* (Mile-measure Hill). Viewed from the south, in shape it much resembles Mount Pilatus, near Lucerne. We lunched at a farmhouse, the farmer lending us knives, forks, and plates, and providing us with "*mjolk*." This house was a much larger building than the ordinary dwelling of an Iceland farmer. We went over a dozen miles up the valley, and returned through the grass land adjoining the river; water was standing there, and the people were gathering in the grass which had recently been cut: they have no carts, but convey the grass to the farmhouses from the meadows on a flat sort of hurdle arrangement, hauled by a pony. Both men and women were working in the water-meadows. I took a view in the valley of some hummocks, which are very often seen in the island. These mounds have a height of between one and two feet, and are usually covered by the best grass, therefore it is that such parts are selected for homesteads. It is rather difficult riding over this sort of land. The grass on the hillocks is cut with a sickle: no Icelandier ever thinks of levelling the ground other than the home field around his dwelling. The wind forms cones of sand on the snow; and, after that has been melted by the heat of the sun, vegetation takes hold of the loose soil, and so these mounds are formed.

There is generally one enclosed field (the home-field previously mentioned) situated close to the house, and surrounded by a low turf wall. It contains from 5 to 8 acres. This is manured, and to

some extent cultivated; the remaining portions of the farms are left to look after themselves. Property in Iceland cannot be entailed: on the death of the owners intestate, estates, both real and personal, are distributed equally amongst the children, male and female. The enclosed land before referred to is called a "*tún*," and most farms have in addition a bit of lowland upon which grass is grown; the sheep graze on the moorlands during the fine weather. The small gardens adjoining the house are dug with a spade: no other land is ploughed or seeded down; all is dependent on nature. As there are very few inns in the island—in fact, none except at some of the *handel-steds*, or settlements—travellers, both natives and foreigners, have to get accommodation at the farmhouses. At most of these is a *gesta-sháli* (guest-shieling), or *gesta-stofa* (guest-room), generally forming the front of the wooden dwelling. During my short absence from the comfortable cabin on the s.s. "Thyra," I was, on my first visit, in three of these guest chambers; they were small rooms with wooden floors, panelled walls, bed in an alcove, and numerous chests for holding clothes (these are painted all the colours of the rainbow); then there are on the walls framed funeral cards, with verses dedicated to the memory of some departed relative, and the inevitable portrait of Jón Sigurdsson, the national, and successful, agitator; and on the shelves are Bibles and hymn-books. This room is devoted, as its name implies, solely to the accommodation of guests, and is never used by the family; being without a fireplace or even double windows, it is very cold and comfortless in October; of course, most travellers use these rooms in the summer.



HORN SPOON.

This is a picture of a horn ladle or spoon which I brought back with me. I was told it was a very old one; the handle is carved with hieroglyphics or runes which mean "Welcome" (*Velkomin*). Similar ladles are in every-day use amongst the people. I also purchased an old-fashioned silver spoon (Icel., *Spönn*); the modern spoon is called "*skeid*" in Icelandic. Both these are on the table; the silver spoon, you will notice, is very similar to what antiquaries call an "apostle spoon."

I have wandered away from the *Hjeradsvötn* valley. As my companion and myself returned to the boat we met the farmers going home after leaving their flocks at Sandárkrokur to be put on board ship; they were all more or less intoxicated, and the wonder to us was how they could safely traverse the slippery tracks; their ponies, fortunately, were sober, and, but for them, we felt sure some of the Icelanders would not have managed to get along. We called at *Hofsós* on the east side of the *Skagafjörðr*. (*Hof* is Icelandic for a heathen temple; *ós* means the mouth of a river.) There are only two or three houses here.

September 24th, 1893.

Therm. (Fahr.).	Barom.	Wind.
Air, 41°9'. Water, 43°.	29°9°.	S.

This morning we found ourselves in the *Húnaflói* (Bear-cub Flood, or Bay)—it is larger than a *fjörd*—so called, Professor Olsen told me, because the discoverer of this part of the island here met with two young bears that had probably come across the ice from Greenland. The headland, or *skaga*, we had last rounded has a very rocky and dangerous coast. We anchored off Skagaströnd, which place is shown on the map, page 1. No dwellings of any kind were to be seen; it was a most desolate-looking spot. We landed eight Icelandic maidens who were going to a school here. The Arctic current sweeps at a great speed down this fjord, and when the wind is north-west it is a most dangerous place for ships. As we slowly made our way north we passed some needles of rock—the natives call them *Drangar*. On the west side of *Húnaflói* are glaciers from Dranga Jokull coming right down to the sea. The sunset was most lovely, and just after the sunset we passed round the Horn, or North Cape, one of the finest of northern headlands. The captain and mates said they had never seen the scenery on this north coast better than during this trip. We kept close inland, as the wind was blowing off the shore. There is a very strong current about this part of the north coast running from north-west to south-east. About midnight we arrived at *Isafjörd* (Ice Firth).

September 25th.

Therm. (Fahr.).	Barom.	Wind.
Air, 39°. Water, 41°.	30.2°.	W.

We anchored in a pool (Icel., *pollen*) shut in by an (*eyre*, or) *eyri*, such as I have previously described. To show this and the situation of the handelstedi I made on board ship a sketch or chart that much amused the captain and mates. This is the third largest of the Icelandic "towns," and is the cleanest and most prosperous looking. It is situated in the *Skutilsfjörd* (Page's Firth).

The view on the next page shows a shark oil factory on the *eyri*; the stones shown in this picture are those on which the flat fish are exposed for drying purposes; the tramway is for the purpose of transporting fish; the pool where the steamer anchored is under the hill (*Eyrary-field*) to the left. The principal factory or storehouse is near the church (*kirke*), on the *eyri*; the second house from the factory is that of Herr Skuli Thorodsson, a well-known member of the Icelandic Parliament (*Althing*), whom I met on my return voyage in 1893. The term "field" in *Eyrary-field* is the same word as our English expression "fell," there is Fairfield near Grasmere in the English Lake District.*

From Isafjörd I walked along the south shore of *Isafjördarjúp* (Deep of the Ice Firth), where are great numbers of eider ducks. One great headland after another appears, and lesser fjords open out from the Deep; many of the mountains rise in terraces; the sunlight and clear atmosphere make the various views most charming, notwithstanding that it is only in the valleys that there is any vegetation. In its way, I never saw anything grander than this fjord.

* Field or Fjeld is Danish. *Fell* is Icelandic. *Fjall* (Icel.) means a mountain.

We passed through Hnífsdalr, a fishing village; all their "wind-houses" were full of fish drying, and very strong they smelt. The inside of an Icelandic country dwelling differs much from the interiors of houses in more southern latitudes. On one of the clothes chests in the living room is, as a rule, a *skyr-pot* made of wood. I brought back an old one with me. "*Skyr*" resembles curded milk in the condition in which it is in England put into a press to be made into cheese, and is a very common article of diet in Iceland. I did not taste it, but the natives make their breakfast off it; it is sour, but they use sweet milk or cream to it, and sometimes give it a peculiar flavour by mixing with it the juice of the juniper berry. They prepare it by placing the pot—constructed generally of wood—in a warm place near a fire, but the milk is not allowed to boil; after it has become lukewarm, rennet is put with it, and this curdles the milk, which is still left on the hearth until the whey has completely separated from the curd, after which it is strained off. The curd is much more solid than Devonshire junket. Sometimes the people chop up Icelandic lichen or moss and put it with the curds, which are said to be very nutritious.



SHARK OIL FACTORY AT ISAFJORD.



Photographed by Franz Baum, Manchester

Mr. S. OPPENHEIM, J.P.

Vice Consul for Austria-Hungary, Honorary Treasurer of the Society.

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OF THE

MANCHESTER GEOGRAPHICAL SOCIETY,

ICELAND AND THE ICELANDERS.

By MR. JOHN R. NEWBY.

[Addressed to the Society, in the Library, at various Meetings.]



HOT SPRINGS AND GLACIER, WEST OF ANNARFELLSJÖKULL, ICELAND.

[See p. 219 of Vol. XV. of "Journal."]

II.

PISTOL, in replying to his fellow-soldier, Nym, said, "Pish for thee; Iceland dog! thou prick-eared cur of Iceland" (*Henry V.*, act ii., scene 1).

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There are many dogs about in the towns, and on the farms. The house-dog (*bæjar-hundr*) much resembles what Englishmen know as an Eskimo dog, with a sort of ruff around his neck, head somewhat like a fox's, and tail curled over its back. There is a law against importing foreign dogs into the island.

The above photograph is one I took of a sheep-dog (*fjár-hundr*), such as are to be seen at the farms; they are of great use to the farmer, keeping his herds together, and defending his home-meadow from the inroads of cattle. The greater number of dogs are black in colour.

Icelandic is one of the most difficult of all languages for a foreigner to learn. The letter "á" is sounded like "ow" in our word "how"; "æ" like "i" in "time," as in *bar* (a building) the very



SHEEP-DOG AT ENTRANCE TO FARMHOUSE.

same word as our north country one "byre." "Nýr" means "new"; there is more than one farm in the island called "Newby"; the Iceland folk spell it *Nyibær*—*i.e.*, new building; "i" is pronounced like "i" in pin, and "í" as "ee" in feel, "j" like our "y"; *Jökull*, the meaning of which I have before explained, is pronounced "Yuk-ull." "Ei" or "ey" is sounded as "a" in "say"; the name of the capital of the island is *Reykjavík* (pronounced by Icelanders "Rayk-ya-veek," and by Danes "Ryek-ya-veek"); the historic meeting-place of the Parliament in ancient times. *Thingvellir* is pronounced "Thing-vetleer." There are two special letters, hard "th" and soft "th." Many Icelandic words are almost identical with English: take the points of the compass, "*Nordr.*" "*Sudr.*" "*Austr.*" and "*Vestr.*"; "*hús*" is house, "*langr*" is long, "*mann*" is man, "*litil*" is little. "*Mikla*" means large, the same

as the Scotch word "muckle." "Good morning" the Icclander pronounces "*God morgun*," and "*dagur*" means days; for "yes" they say "*já*" (pronounced "yow"). Their numerals commence, *einn*, *tveir*, *þrír*, *fjórir*, *fimm*, *sex*, etc.; the year 1894 the Icelanders call "*eitt þúsund átta hundruð níutíu og fjórir*."

The remote position of Iceland and the slight intercourse which its people have had with their fellow-creatures have secured to the islanders the purity and originality of their native language; there is not an Icclander of fourteen years old, whatever his calling, who is not capable of reading with ease any of the very ancient books and documents that there are in the island when these are printed in the usual way. Icelandic history is always told in poetic language; and so the present generation, by hearing these records repeated during the long winter months, are well up in the history of their country; and, in fact, there is no nation that is better read than the Icelanders. Their language is the standard of the northern dialect of the Gothic language; the Swedish, Danish, and Norwegian have been more or less subject to the influence of the Teutonic or German branch. In Iceland the original tongue has been preserved in its entirety. It was primarily called the Norse language, and it was not until after it had ceased to be spoken on the Continent that it assumed the name of Icelandic. At a very early period the inhabitants of this comparatively barren island not far from the North Pole were cultivating the arts of poetry and history, and laying up stores of knowledge which furnish a great deal of information about their affairs, and those of other nations, besides supplying data respecting their own political and domestic concerns. The Norwegians who first peopled the island were, as I mentioned at the outset, sprung from distinguished families, and had been accustomed to listen to traditionary tales of the deeds of former years; and in the course of their numerous piratical expeditions had obtained an intimate acquaintance with the politics and history of the other countries in the world. The classical period of the "Old Northern" belongs to the 12th and 13th centuries; the copiousness of the language nearly rivals that of Arabic, more than fifty compounds being applicable to a ship, while nearly as many designate a sword, or a woman. The first complete Icelandic Bible (a copy of which I have seen in the library in Reykjavik) was produced in 1584, the text was arranged in paragraphs, enriched with capitals and cuts; at the house of one Herr Popp, a Danish merchant, in *Sauðárkrúkur*, I inspected a Bible that was printed at Hólar—the old cathedral town of Iceland—in the year 1601.

The scenery in the *Isafjörð* (in the north-west of Iceland) is the grandest that I have seen in the island. One great headland after another as we pass along the fjord comes into sight; we look up long vistas of lesser fjords backed with dark blue mountains, snow-capped and precipitous, towering one above another. We went along close to the shore, and everywhere saw huge masses of basaltic rock, torn from the heights and hurled on to the shore beneath; it was over these that my companion and myself had to climb when we walked along the fjord side. They are truly awful witnesses of the fury of the Arctic winters; all is so weird and great that we did not seem

to miss the green and bright colours of our more southern landscape. At the entrance to this fjord from the ocean stands, on a platform of basalt high above the sea, a large rock needle (*Drangi*) known as "the Sentinel." No words can adequately describe, nor can any picture correctly depict the way in which at one moment some mountain or headland is seen clothed in pink glory; then the light floats away, that hill becomes dark, and the colour flits to an adjoining mountain, the patches of snow on which are of a most lovely pink; thus the scene and lights are ever changing.

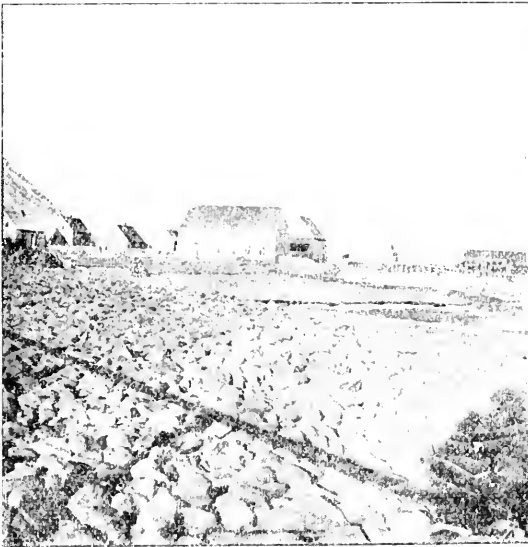
During our walk I noticed sheep eating sea-weed. At the fishing village, Hnifsdalr, were some vertebræ of whales lying about. Some boats came in with a large catch of cod and other fish; the dried codfish mostly goes to Spain, and Romanist countries, and is eaten on fast-days. I cut off the head of a skate (Icel., *skata*) that was hanging up to dry, and now have it amongst my Icelandic curios; the teeth are beautifully white and regular, and when the fish was alive I should not care to have put my fingers within its jaws.

September 26th.

Therm. (Fahr).	Barom.	Wind.
Air, 40°. Water, 39°.	29°.	N.-W.

I nowhere saw more fish and fish-curing than at Isafjord. I have mentioned that the fishermen seem to revel in wet feet; they are rarely long lived, owing to this cause and the fatigue and hardships they undergo; they all have coughs, and many die of pulmonary affections. On their return from fishing their boats are hauled up, and the fish (for the purposes of division) are thrown out and heaped together in separate groups, according to the number of men in the boat; the fishermen generally retire fatigued, and the splitting and carrying home of the fish is left to the women and children. The scale-covered oviparous vertebrate of which they catch most is cod; it is, after being split, spread out on the stones to dry, and is called in Icelandic *salt fiskr*, and in Danish *klip fisk*; the heads are cut off, dried, and sold to the poorer folk; the bones, if not eaten—and I have seen an Iclander munching a bone, often softened first in butter and milk—are used for fuel. While lying on the surface of the large flat stones on the beach and around the factories the greatest care is taken that the fish are not exposed to snow, rain, or damp. They dry in about three weeks, and afterwards are stacked on the beach, covered with tarpaulin, roped round, and weighted down with heavy stones. Sometimes they are hung up to dry in the wind-houses (*hjallar*), which are sufficiently covered to keep out the rain; when dried in this way they are called in Icelandic *hard fiskr*, and in Danish *hengi fisk*, or hung-fish, to distinguish them from *salt fiskr*, or those salted and dried on the stones. The dried fish are mostly used for home consumption, and are suspended unsalted; they can be distinguished from the salted fish by their shrivelled appearance and darker colour, and are, as a rule, eaten uncooked; before many house doors may be seen the stone on which they are beaten. I went over the "*faktori*" of Mr. A. Asgeirsson at Isafjord, and had the whole

process of fish-washing explained to me by a young and intelligent Danish engineer of the name of Hansen, who returned to Copenhagen by the "*Thyra*," and from him on the home voyage I got much information on general subjects; he had invented a fish-washing machine, which had been in use in the faktori all the last summer, and saved a great deal of labour—an important thing when labourers are so few. I saw the machine, and also some photographs of it; in order to obtain a white flesh the belly of the fish is ripped up, head cut off, and body gutted, the liver and roe being separated and carefully kept; the backbone is next partially abstracted, after which the carcase is rinsed in salt and water, subsequently being laid in salt for several weeks before it is again thoroughly washed. With this machine the washing is accomplished by an ingenious arrangement of revolving



FACTORY AND HOUSES ON THE FYRI, ISAFJORD.

brushes; the washing begins in April. Afterwards the fish are laid out singly—as I have explained—on the stones to dry, being frequently turned by the women so that both sides may be alike. This is a photograph I took of a small dog sitting in front of a farmhouse, the walls of which were cracked and injured in the earthquakes of 1896. The animal is prick-eared. One of the most recent works on earthquakes is that of Professor Milne.*

The Norwegian consul, a merchant in Isafjord, came on board the "*Thyra*," in 1893, very drunk: Captain Garde said that was his usual state, and he was drinking on board. The captain did not like to quarrel with him because of business; however, the man was very offensive to me, and I left the smoking-room telling him he was

* "*Seismology*," by John Milne, F.R.S., F.G.S. (Kegan Paul & Co., London, 1898).

"*manga drukken*"—very intoxicated—which he understood; and he afterwards told the steward he would not again come on board the "Thyra," which pleased them much! He was not seen when we returned in October; he was over six feet in height, and took a great deal of snuff. Icelanders carry a snuff-horn, made of the horn of a goat or calf, and tipped with metal—sometimes silver. I brought back one made from a goat's horn, and tipped with brass; at the small end is a little stopper which takes out. The islanders pour out two little heaps of snuff on the back of the left hand and snuff it up; sometimes they throw their head back with a sudden jerk, applying the horn to the nostril. The consequence of the men taking so much



FARMHOUSE SHOWING EARTHQUAKE CRACKS.

snuff is a very turned-up and thick upper lip, and nostrils that remind one of the Highlander who was standing at the door of the hotel at Blair Athol*—a fine figure in tartans. A Lowlander, who much admired the wide dimensions of the other's nostrils and turned-up nose, offered him his "mull" for a pinch. The stranger drew up, and said: "I never take snuff." "Oh!" said the other, "that's a peety, for there's a *grand accommodation*."

In several parts of Iceland lignite is found. It is there called "*surtarbrandr*" (Satan's fuel), and may be described as imperfectly-formed coal, in which the original form of the wood is so distinctly preserved that it can easily be recognised by the unaided eye. The

* "*Reminiscences of Scottish Life and Character*," by E. B. Ramsay, LL.D., Dean of Edinburgh.

principal beds are near Isafjord. I unfortunately had not time to visit these, but saw some *surtarbrandr* taken from the beds, in the museum at Reykjavik, and also saw some polished. One writer, speaking of the lignite beds, says: "Here are the almost uninjured remains of great forest trees under mountains of superincumbent rock, which must have spread over them in a molten condition, when they were imbedded in mud beneath the sea-surface." Other folks contend that no large trees ever did grow in the island, and that *surtarbrandr* is not a growth like that which created the coal of the carboniferous period, and say that the product is accumulated "drift-wood" (semi-fossilised by heat and pressure). The produce or flotsam of the sea used in some measure to compensate for the want of native forests, but, comparatively speaking, very little drift-wood now reaches Iceland's shores; the North American has learnt its value! Each Icelandic farm has its division of the beach, and appropriates the timber that floats on to that division. They told me this *surtarbrandr* is of no use as fuel: peat or turf (Icel., *torf* or *mór*) is the fuel they use.

On board the steamer the Icelanders in the hold, of whom there were a good many, sang frequently: more melancholy music I never listened to; they seldom break out into a joyful tune. The first verse of their national song is:—

Eldgamla Ísafold,
A'stkæra föstumold,
Fjallkonan fríð!
Mögun þín muntu kær
Medan lönd girdir sær;
Ög gumar girnast mér,
Gífar sól á hlíd.

Which may be translated:

Old land of Ice,
Dearly beloved native land,
Fair maid of the mountains!
Dear thou shalt be to thy sons
As long as land is surrounded by sea.
As men love women,
Or sun-gleam falls on the hill-side.

Our next calling-place going south was *Flateyri*, built on an *eyri* in *Örundarfjord*, of which bay there is a picture on page 140 *ante*. To hear "the veteran" from Somersetshire talk was most amusing, though at times I had difficulty in understanding all he said. While we were anchored at *Flateyri* I saw him go up and talk to our captain; it seemed he was describing to him (in broad Somersetshire dialect) a black squall he was in, when he went out to

* Where the two special Icelandic letters occur that are wanting in the English alphabet they are represented respectively by "d" and "th." In Hebrew the name *David* is composed of the letter י (*Yod*), between two ד (*Dals*)—דוד, and, according to the Masoretic points, ought to be pronounced *David*. Having no V consonant in their alphabet the Septuagint substituted the letter Β for V, and wrote Δαβιδ, (Dabid). The Syriac reads *Dad*, or *Dod*; and the Arabs articulate *Daoud*. Suleyman, whom we are told in the "Thousand and One Nights," ordered the condensed spirits to be bottled up, hermetically sealed, and thrown into the sea, was a son of Da-oud.

India, and comparing it with the storm we experienced. Afterwards "the veteran" said to me, he was surprised that the captain understood so little English, and the captain asked me what language it was "the veteran" talked! I asked a member of the Iceland Parliament if the north country Icelander had any difficulty in understanding his fellow-countrymen from the south. He seemed much surprised at my inquiry. I then explained to him about dialects in our islands. "Then," said he, "you have, I presume, Professors of Dialect at your schools and universities, and tutors who teach Scotch and Irish?"

September 27th.

Therm. (Fahr.).	Barom.	Wind.
Air, 48°. Water, 49°.	29.4°.	N.-W.

We arrived at *Thingeyri* (on *Dyrafjörd*), where is the store of Herr Gram—a Danish merchant—with whom Dr. Fridtjof Nansen stayed in 1888 before he set off across Greenland. Dr. Nansen travelled from Granton to Faröes and Iceland in the s.s. "Thyra," and, besides giving a picture of the boat off the south coast of Iceland, gives several interesting views of both Faröes and Iceland scenery, and pictures of some natives.* Herr Gram, who lost two boats in the storm we experienced, returned on the "Thyra," in October, 1893, and told me a good deal about Nansen and his fellow-travellers, then on their way to the North Pole. I travelled with him also on the "Laura" on her return voyage in October, 1896, and it was with much regret that I heard of his death during the following year.

Here, and in other places at which we called, I noticed, drying on a line between two dwellings, birds of various sorts: they are used for fuel. There are numerous cottages by the side of Dyrafjörd; in front of some were headless fish drying and scenting the atmosphere. These dwellings of the fisher-folk vary in their construction as much as do the Icelandic farmhouses: some have foundations of lava blocks mixed with turf on which is built a wooden dwelling, others have excavated foundations, and the structure is of corrugated iron. It is a common thing to see an old wooden barrel doing duty as a chimney!

Up to this point "the veteran" had never left the steamer, but at Thingeyri, while my companion and myself were strolling about, "the veteran" accompanied some Icelanders on shore, and they went to the inn—"Niagara Falls"—having asked the old man to slake his thirst: but when it came to paying, all his companions said they had left their purses behind, and "the veteran" had to pay for the lot! It was very fine to hear him tell the tale; nothing would persuade him to go ashore again until we got to the capital: and "very weak stuff" he said the beer was at the inn! This was no typical trait of the natives—who are extremely generous—but, as the *Spectator* said of Sir Roger de Coverley, are humorous. The Prestri's son told me much about the Latin School at Reykjavik (Icel., *Hinn Lærða Skóla í Reykjavík*), where there are seven professors, and about a hundred students. There are a few exhibitions—or pensions as they

* "The first crossing of Greenland by Fridtjof Nansen." Longmans, 1890.

term them—of 500 kroner (£28) a year for five years; the school has a library of 9,000 volumes. The students can remain at the school until they are 20; some few go to Copenhagen to complete their education. I called on the Prest's son (in his college chambers) there at Christmas, 1899. Candidates for the Church are educated first at the Latin School, and then in the Theological College. A lady joined the boat at Thingeyri, and, at dinner, said to the captain: "How lang do you lig here?" He saw me smile, so I told him I had no difficulty in understanding that inquiry. She could not talk English. We called at *Bildudalur* (Axes Dale) on *Arnarfjörð* (Erne, or Eagle, Firth), and disembarked some provisions for the few folks living there, for the winter months.

September 28th.

Therm. (Fahr).	Barom.	Wind.
Air, 49°. Water, 48°.	29.2°.	S.

We arrived this morning at *Patriksfjörð*, a small settlement lying under a huge shoulder of rock. The Danish flag was flying on the principal "*faktori*." This is a place called after a namesake of the Irish apostle. The trading station is called *Vatneyri*, and is protected by an *eyri*. I spent some time on shore here trying to get pictures of the numerous skeletons and remains of large whales that were whitening and decomposing on the beach, a most singular sight; but something was wrong with the camera, and I found no result on my return to England. The blubber of the mammals had been cut off and melted; but the bones were on such an out-of-the-way part of the coast that they were useless, as it would cost more to take them to a factory where they could be ground up for manure than the guano would realise. How singular that from the time of St. Matthew (chap. xiii., verse 40) up to now, a notion exists (among many people) that the fish in which Jonah made a temporary sojourn was a whale; it may have been a white shark, but a *right* whale could not swallow a herring, much less a man. Sir Walter Scott told a story of a Scotch minister, who, in preaching on Jonah, said: "Ken ye, brethren, what fish it was that swallowed him? Aiblins ye may think it was a shark—nae, nae, my brethren, it was nae shark; aiblins ye may think it was a saumon—nae, nae, my brethren, it was nae saumon; or aiblins ye may think it was a dolphin—nae, nae, my brethren, it was nae dolphin." Here an old woman, thinking to help her pastor out of a dead lift, cried out: "Aiblins, sir, it was a dunter" (the Scotch name for a whale). "Aiblins, madam, ye're an auld witch for taking the word o' God out of my mouth," replied the pastor.

The cetacean mammal which is principally sought after by whalers is the Greenland whale (*Balaena Mysticetus*); the Icelanders call it the "right whale," and it belongs exclusively to the Polar Seas. On the *eyri* at *Patriksfjörð* is a curious labyrinth, or maze, laid out with flat stones; some Icelanders took me to see it, and said it was made about 600 years ago by a naval officer who was living there; it was evidently very ancient. Here I saw a light-brown mouse

(Icel., *mús*) running about one of the wind-houses; they feed on the drying fish. We now passed across *Breidifjórd* (Broad Firth), went beneath *Snæfells Jökull*, and crossing *Faxafjórd* (Mane Firth), reached the capital, *Reykjavik* (Reekwick) — *reek* means smoke, *wick* means a port or village—about seven in the morning.

September 29th, 1893.

Therm. (Fahr.).	Barom.	Wind.
Air, 49°. Water, 49°.	29°.	N.-E.

We were due at the capital on the 26th, and should have started on our return voyage on the 1st of October; but the captain said he would not leave till the 3rd; so I had just time, by pressing, to visit Thingvalla and the Geysirs.

From the harbour a windmill was in 1893 a prominent object, but it was not in working order. In 1896 I found it had been taken down. From the hill on which the mill stood is a grand view of *Faxafjórd*, showing the sweep of mountain shores enclosing the northern extremity of the bay. Sixty-five miles away to the west shines the unbroken white mass of *Snæfells Jökull*; it is difficult to realise that it is so far off. It was a fine, clear day when we arrived; the air in these northern climes is unusually clear, so that the tints of this great panorama were marked with the greatest possible delicacy. There is none of the warm glow you get in the south, but at times the lights remind one of the Mediterranean. I made friends with an Icelanders on the boat named Kristján Jónasarsen, who is now a traveller for an English firm; he used to be a guide. Besides giving me much information he assisted me in getting off the boat quickly, and took me direct to Mr. Paterson (the British consul), who was a friend of his, and to whom I had an introduction; and, leaving my luggage at the Hotel Island, we at once went to the warehouse of Messrs. Zoëga and Company, whose firm provide the best ponies. At first they said I could not possibly get to the Geysirs and back in the time at my disposal. I told them I was determined to go, and should get ponies elsewhere if they would not find me some. At last they said, if I would take seven ponies, three for my own riding, two for my guide, and two for baggage, they would find me ponies, and a guide. It was unusually late in the year for tourists to travel in the island, so the ponies were outside the town, and had to be shod, but Zoëga said I should have them at the hotel by 2 o'clock, and they were there at 2-30. It was greatly owing to the assistance of Kristján that I got the matter arranged. Since 1893 I have seen him every year in England, and in 1896, to his surprise, I met him again in his native land. I travelled with him to Copenhagen at Christmas, 1899, and we spent a week there together. He is a very intelligent, clever, good fellow.

The photograph of myself and the seven ponies,* of which there is a copy at the commencement of this paper, was taken soon after 2-30 by Daniel Danielsson (my guide when I visited the island in

1896); he was working with his brother-in-law, a Reykjavik photographer, named *Sigfús Eymundsson*. The young fellow standing in the doorway of the Hotel Island is Hans Julius Jørgensen, the step-son of Halberg, the proprietor; they are Danes. A step-daughter I met there had lived in England; her high colour and bright face was a great contrast to the sallow skins of the Icelanders. The houses beyond the hotel are stores with dwelling-rooms above. The road is made of fine black powdered lava. On the shutter of the house next to the hotel was a notice—in English—prohibiting fast riding through the streets. The window of the bedroom I occupied is open; everything was nice and clean, and in an out-of-the-way back settlement I found an excellent bath. The drawback on the "*Thyra*" was that she had no bath-room; there is one on the sister vessel, s.s. "*Laura*."

After arranging about the ponies and breakfasting, young Jørgensen introduced me to the photographer, and showed me where Dr. Ølsen lived; he is a bachelor. I met with a kind reception, and had an opportunity of admiring the pictures he had brought back from Rome, Greece, and other parts of Europe. The Latin School, a plain white building, stands opposite to where Dr. Ølsen dwells. He had a meeting of professors in his study, and he introduced me to the various members; after he dismissed them he most kindly walked with me to the house of Herr Pálmi Pálsson, the curator of the Museum and Library. Dr. Ølsen had come on from Isafjord in a direct steamer, and had arrived two days before the "*Thyra*." The studies at the Latin School commenced in three days—on the 1st of October—and last till the end of June; July, August, and September are holidays, which the students spend at home helping to get in hay and what little else there is to be garnered. It was an *exceedingly hot* morning, and I wished I had had an umbrella—like the natives—to ward off the sun's rays. When I revisited the country in 1896 I found that Dr. Ølsen was the Rector or Principal of the Latin School, and he resided at the school, where he expressed much surprise at seeing an Englishman in the month of October. Everything in the island is so novel and strange; I had never before seen blue cats; they were greyish-blue, and were numerous, but I learnt the people asked several crowns (1 kroner = 1s. 1½d.) for a kitten! I have read the late St. George Mivart's "*Study of the Cat*"; but, beyond that he mentions there *are* blue cats, I can make out nothing about the variety. The Prestr from Siglufjord took a blue kitten back with him on our boat. Herr Pálsson promised to meet me at the Althing (Parliament) House at 1 o'clock, and Dr. Ølsen said he would try to be there at that hour.

I rambled all over the town, which, according to Murray, contains nearly 4,000 people,* and consists of three main streets, which run from north-west to south-east, with several cross-roads; the beach where we landed is black sand, or powdered lava; there are three or four small wooden piers, or rather jetties; in the main street nearest to the sea are heaps of fish and merchandise; and in all

* "*A Handbook for Travellers in Iceland*." Sixth edition, revised and enlarged. John Murray, London.

the streets and at all the corners, are loafers!! The term "loafer" is an Americanism, and means an idler, a flâneur, or tramp; it is derived from the Dutch slang *loever*, or *loef*, an idle stroller.*

"Loafing vagabonds."—*William Black.*

On the vacant spaces between the houses are the usual stones covered with drying fish, which *at first* are offensive to the olfactory organ. The main avenue is called Austurstræti; beyond is the Adalstræti, and here are the important buildings of the town—the Cathedral, Althingishús, and Post Office. All the traffic of the country is borne on ponies.

"You'll see a draggled damsel,
From Billingsgate her fishing traffic bear."—*Gay.*

It looked very odd to see a butcher's boy riding with a sheep in front of him. I saw many handcarts, and one cart drawn by a pony; and Dr. Olsen told me there was a hansom cab in the capital, the inhabitants of which, in addition to Iceland-born men, consist of Danish merchants, officials, and fishermen. All the officials are now natives; formerly they were Danes. Above the town is a lake, the water from which flows into the sea; the Latin School lies to the north-east of the stream. In several of the gardens attached to the cottages of the fisher folk are flowers. I was introduced to the Postmaster, who was very polite, spoke good English, and put together for me a complete set of the postage stamps of Iceland. Not far from the "Hotel Island" is the town pump; to this flock men and women, and carry away pails of water, balanced by a square fender of lath—like a falconer's cage (Icel., *vatus-grind*). Next door are Public Baths. Nearly every house in Reykjavik is built of wood, painted brown or tarred—some are white and have a corrugated iron roof. Around the fishermen's cots are decomposing fish, which *smell unhealthily*, but the people seem indifferent to strong odours. "How use doth breed a habit in a man." The first picture in this paper gives anyone a very good notion of the better class of dwellings in the island.

In the grass square facing the Althingishús is a monument to the sculptor Bertel Thorvaldsen, and very artistic it is. Icelanders say his father was an Iceland (Gottskalk Thorvaldsen) and his mother was Danish; that he was born in 1770, near Saudárkrók, in the north of the island, or at sea, when his parents were crossing from Skagaðfjörðr to Copenhagen. The Danes say his mother was Danish, and was never out of Copenhagen, in which town there is a tablet, on a house in Grönugade (Green Street), not far from the King's New Market (Kongens Nytorv), stating Thorvaldsen was there born. He died in 1844, and left most of his money to establish the museum in the Danish capital, where many of his works are preserved. In a biographical work by a Danish writer named Thiel (a friend of

* See "Handy-Book of Literary Curiosities," by William S. Walsh. [Gibbins and Co., Ltd., London. 1894.]

Thorvaldsen), he says the sculptor in his will wrote: "I present all my works to my birthplace, Copenhagen." A mixed company of Danes and Icelanders will argue for an unlimited time the question as to the sculptor's birthplace and nativity. In Reykjavik Cathedral is a font carved and presented by Thorvaldsen, with a Latin inscription. The basin, of which I saw a *replica* in the Thorvaldsen Museum in Copenhagen at Christmas-time, 1899, is in the chancel of the Cathedral, and is so low that it looks more like a pagan altar than a font; but the sculpture on this square block of marble is very beautiful. Round the small bowl is a wreath, on the front of which is a representation of our Lord's baptism, on the right is Christ blessing little children, on the left the Virgin and Child, and on the back is a festoon, and a cluster of fat cherubs supporting an inscription, "Opus hæc Romæ fecit, et Islandiæ, terræ sibi gentiliæ pietatis causâ donavit Albertus Thorvaldsen, anno mdcccxxvii." These *basso-relievos* are as chaste in design as the work of Flaxman, with which we are so familiar in England. Flaxman was born in 1756, at York, and died in 1826. "The Lion of Lucerne" is, of course, the best-known of the designs of Thorvaldsen; it was sculptured in 1821, to the memory of the Swiss guards who fell in the defence of the Tuileries in 1792. There is a full-length figure of our Saviour above the altar in Reykjavik Cathedral, carved by Thorvaldsen; it is very like the colossal figure on the *façade* of *Vor Frue Kirke* (Our Lady's Church) in Copenhagen. During the stay of the "Thyra," on every warehouse and on many of the dwellings was flying the Danish flag. About 11-30 one day all the flags were lowered to half-mast high; on inquiring the reason, I was told that there was a funeral, so I walked to the Square near the Cathedral and watched the procession, headed by the Bishop, wearing a broad snow-white Elizabethan ruff and a tall stovepipe hat; following the mourners were several hundred people, so I presumed the deceased had been some well-known inhabitant, but I could not make out who he was. I was told that at a funeral in the capital it was the custom for numbers of the people to attend even if they were not friends or acquaintances of the dead man. The funeral over, up went all the flags again. There is only one Bishop for the whole of Iceland and he lives in the capital; his official salary is about £380 a year. In each of the different counties (*sysler*), of which there are twenty-two, is a Dean, who looks after the temporal and spiritual condition of the churches, and superintends the education of the children. The Cathedral is lofty, substantial, and plain; but there was nothing besides the font that needs special notice. On the outskirts of the town the dwellings are huts, built of lava blocks and grassy sods, with grass roofs; but most, if not all, have a front gable of wood, and a wooden chimney. In my previous paper* I gave details as to the modes of construction of Icelandic dwellings.

Of the outside of the "Hotel Island" I have given a picture (p. 115 *ante*); as it will be seen the other houses in the street are three storeys in height, so is the hotel. Passing through the front door, a small entrance-hall is entered; on the left of this is a good-sized billiard-

* The Journal of the Manchester Geographical Society, Vol. xii., p. 175.

room and bar, the table looked as if it were well patronised; going along a passage to the right of the entrance-hall we come to the public dining-room, which looks into the main street; on the opposite side of the passage is a cosy little sitting-room, nicely furnished, with paintings and photographs on the walls, flowers in the window-sills, and a piano; between this room and the billiard-room is the kitchen. Mounting up a staircase from the entrance-hall we reached a landing; here passages run right and left, on either side of which are clean and comfortably-furnished bedrooms, and there is a similar arrangement on the next storey. I did not take my photographic camera on shore on my first visit to the capital, as my time was so very short. The rooms in the hotel have no carpets, and are heated with stoves such as are seen in Germany, and turf or peat is the fuel that is used; it is cut in the immediate neighbourhood: I saw more than one cart loaded with it, and outside the town saw the stacks of peat.

Meeting my boat companion and "the veteran" during my wanderings, I suggested they should come with me to the Museum, and said I would ask Herr Pálsson to let them accompany me over the building; this they did. The curator met us at the *Althingishús* (chamber where the members of Parliament meet), the largest and finest building in the island. The material of which it is erected is dressed stone; it has no pretensions to architectural beauty, but, compared with the surrounding buildings, it looks very substantial. Over the principal entrance is a carving of a falcon (the national emblem of Iceland), above which the cipher or monogram of the present King of Denmark alternates with the arms of Reykjavik—a flat salted codfish, surmounted by a crown. We were conducted by our guide, who spoke English, first to the Lower, and next to the Upper Chamber, both of which are plain square rooms of moderate size containing seats and desks, in the Upper House for 12 members, and in the Lower House for 24. Six of the Upper House are chosen by the Lower, and the other six by the King of Denmark. There is a rostrum for the President. All members receiving their travelling expenses and 6 kroner (6s. 8d.) a day during the session of Parliament. Each of these assemblies is presided over by a President, who receives an official salary. The rooms are simply furnished, and are not relieved by decoration, other than pictures on the walls of scenes in Iceland and portraits of senators, all of which, from an artistic point of view, are very bad. Immediately after a general election 30 members take their seats as representatives of the people; of these, 6 are at once transferred to the Upper House, by the vote of a majority of their colleagues; no man is qualified for a seat in either House unless he be an Icelanders or a Danish subject, not less than 30 years of age, who has resided in Danish dominions at least 5 years. The franchise under the constitution of 1874 is possessed by all officials, ecclesiastics, university graduates, holders of farms on lease, persons who pay a minimum rent of 8 kroner a year, and country people who pay parish rates, "provided they are of unblemished character," at least 25 years old, and have resided not less than 12 months in an electoral district. Women, minors, paupers, and criminals are excluded from the franchise! The island has the same coinage and the same standards of measures and weights as Denmark.

The upper storey of the *Althingishús* is occupied by the Icelandic Museum. Such of you as have seen many museums will agree with me that (as a rule) there is a great sameness amongst them; but the Reykjavik collection had a novelty and freshness about it; everything was Icelandic except the comments of "the veteran," who, without meaning it, was extremely amusing. Amongst other things worthy of notice was a large and beautiful model of the Viking ship that was sent over to the Chicago Exhibition. Herr Pálsson, on my first visit, in 1893, and his successor, on my second visit, in 1896, took a great deal of pains to explain the various specimens. They told me that many of the treasures of Iceland were secured by collectors before the Museum was founded, and were taken away from the island; yet there are still left many most interesting examples of old native workmanship in wood, gold, and silver, such as filigree brooches, belts, chains, and necklaces; also snuff-boxes. I very much admired the wood-carving. Dr. Ólsen joined us, and told me (amongst other things) that the wood used was drift-wood. Numerous modern copies of old Icelandic wood-carvings have been sent to, and exhibited at, the Paris Exhibition, 1900. I was amused with a series of dolls attired as Greenlanders. The native metal-work was original and very interesting; the brooches, buttons, and ornaments, of which I obtained some good specimens of this work. The collection of precious stones and jewels in this museum must be very valuable. There were a great many swords and weapons—old spears and halberds, battle-axes and daggers—as well as much embroidery. I brought back with me an old embroidered bodice which has been much admired by ladies; it is wonderful how the colours have lasted. The old drinking cups, doubtless used at many a wassail (A.S., *was heil*; literally, "Health be to you")—and if the ancestors of the islanders were as thirsty a lot as the present race the cups *would* be used—formed a most interesting collection. In every country to which I have been there is a different way of saluting, or pledging, in drinking; Shakespeare wrote—

"I drink to the general joy of the whole table,
And to our dear friend Banquo."

In Iceland, the folks, after the cup or glass is filled, bow, then raise the vessel, tilt it slightly towards their fellow-drinker, and make a second bow before disposing of the contents; when they help another from a fresh bottle they first pour a few drops into their own glass. To return to the Museum: many of the drinking bowls are made of ivory (walrus, they said); there were quaint old stirrups of wood and bone, prettily embroidered saddle-cloths, and some tapestry-work, and a great number of boxes on which are painted and carved figures of ladies and knights, in quaint, old-fashioned costumes, riding with hawk and hound. My attention was drawn to several enamelled and jewelled crucifixes of the 13th century, and numbers of richly-worked ecclesiastical garments and altar cloths. It is a matter much to be regretted that many of the industries represented in the Museum are no longer pursued in Iceland. The Public Library is on the ground floor of the same building. Dr. Ólsen introduced me

to the librarian, a very tall, learned-looking man, who did not talk English. The Library in 1893 contained 25,000 printed books, many of them English, and 1,300 manuscripts, several of which date from the thirteenth century. Some of the most valuable of the MSS., including one dated 1066, when—as Dr. Olsen remarked—William of Normandy conquered England, were shown to me; it is marvellous how they have been so well preserved. In this Museum was shown to me a copy of the first Bible printed at Hólar, in the north of the island, in 1584; it was the work of Bishop Thorlaksson, who not only made a translation from the German version by Luther, but carved, with his own hands, the blocks for the numerous woodcuts that illustrate the holy work. The Americans who visited Iceland in 1874, at the celebration of the 1,000th anniversary of its colonisation by the Norsemen, presented an excellent collection of modern books, on all subjects, to the Library. A citizen of the United States in the early fifties wrote a most amusing and facetious work of his travels in Faröes and Iceland,* in which he proved, to his own satisfaction, that Columbus visited Iceland in the year 1477. If early Scandinavian history can be trusted, the Vikings discovered and explored the shores of the great western continent in the 10th and 11th centuries. Any one who takes interest in reliable and humorous works of travel, such as are published by that original and popular writer "Mark Twain," should read the work of this Yankee, a copy of which is in the Manchester Free Library. The Icelanders always have been, and still are, very good penmen; being but ill-supplied with *printed* books, the natives were under the necessity of copying those of which they could get the loan, and this accounts for the fact that most of them write beautifully: some specimens of their Gothic writing—that is, the black-faced and pointed letters—might be mistaken for copper-plate. Almost all the historical and poetical works now written in the island are multiplied in manuscript.

There is a regular tide (*i.e.*, alternate rising and falling of the waters of the ocean) round Iceland, ebbing (*fjara*) and flowing (*flód*) according to the rule of six hours; it sets into the fjords, and is stronger when the moon is full and new and strongest at the equinoxes.

The better class of dwellings in the capital are much alike; they have a small hall or ante-room, then the study or reception room, and beyond the *salon*, where the hostess entertains her guests; pots of flowers in the windows, carpets on the floors, a sofa, centre table with books and photographs, and pictures on the walls make the dwellings look cheerful and bright, and (after a while) one forgets the lowness of the ceilings, and other primitive architectural characteristics.

It was 2-40 p.m. on Michaelmas Day, 1893, when I set off from the "Hotel Island" on my ride to Thingvalla, the Mecca of all true Icelanders. The photograph on the first page of this paper shows the seven ponies that I hired: on the one to the left are two travelling boxes, a couple of feet long and of similar depth, and in width nine or ten inches; these were provided by Geir Zoëga (pronounced Geer Surgha) and Company, from whom I hired the ponies: into these boxes I put my

* "Rambles in Iceland," by Pliny Miles. Longmans, 1854.

sleeping rug, my macintosh, and the food named in the following accounts:—

REIKNINGUR.

til herra John R. Newby,

FRÁ VERZLUN G. ZOËGA & Co. í REYKJAVÍK.

Provision for the Trip to the Geysir.

September 29, 1893.

		Kr.	Ans.
an 2 Tins Oxtongues	@ 3/50	7	0
„ 2 Tins Sardines	@ 1/50	1	0
„ 2 lb. Prince of Wales' Biscuits	@ 45	0	90
„ 1 Loaf	1/25	0	25
„ 2 Btl. Encore Whisky	2/-	4	0
„ 2 Breads	1/10	0	20
„ Schweitser Cheese	p.	1	25
		Kr. :	14 60
Less—			
2 Btl. Whisky 2/-	4.00		
1 Tin Oxtongue 3/50	3.50	7	50
		Kr. :	7 10

John R. Newby, Esq., a Trip to the Geysir.

7 Ponies in 4 days	@ 2/00	56	0
1 Guide 4 days	@ 5/-	20	0
		Kr. :	76 0
Provision		Kr. :	7 10
		Kr. :	83 10

£1 12s. 4d.

Paid 3/10/93,

G. Zoëga & Co.

I left it to Zoëga and Company to select the provisions; neither my guide—whose name was “Siggi” or “Zickey,” a short or pet title for *Sigurður*, an ancient Norse name, borne by more than one Norwegian monarch—nor myself had a large appetite, and the provisions would have lasted us for ten days. Zoëga and Company are most fair-dealing people, and (as will be seen) allowed me for a tin of ox-tongue which I did not open, and two bottles of whisky which I did not know they had put in the box. “Siggi” proved an excellent guide, although he knew but little English; he kept the ponies well together, which is an important matter when one wants to get over the ground quickly. I regret to say that when I inquired after my late guide in 1896 I learnt that during the previous year his body had been found in the lake above Reykjavik, to which I have referred. From the bills it will be seen that the charges for seven ponies and a guide for four days were not extravagant; in fact, considering I had seven *first-class* animals, the charges were moderate. It has been remarked that the white pony on which I commenced my trip looks sleepy. I think when the picture was being taken it was in a contemplative mood: it carried me better and moved more easily than any quadruped I have ever been on. Roads

are made in Iceland by "taking off," not as in England by "putting on," stones. They are very few and far between, and are mostly horse-paths and sheep-paths.

On leaving the town, "Siggi," on pony number one, headed the procession, and led the second pony by a cord of hair tied around its under jaw, and the remainder of the animals (except the one I rode) were tied to each other, in a line, by means of similar cords fastened to the tail of the one that went before, and secured around the under jaw of the one that followed. These ponies are worth about £5 or £6 apiece; their value increases with their age: no price will buy a 20-year-old. "Siggi" said the white pony was the oldest and best of the lot I had hired.



Bearing in mind the written notice as to "furious riding," we ambled very quietly through the town past the windmill. The ponies at first required a good deal of attention on the part of my guide; I fancy they thought it was extremely late in the season to make a journey, and then they had only had their *new shoes* on for about an hour! We passed many strings of ponies laden with dried fish, the scent of which will last a lifetime. So soon as we had passed the last house of Reykjavik, "Siggi" untied the cords, started off—as a vanguard—the pony that was carrying the baggage, the others followed, and all really seemed to enjoy galloping along the road formed of fine powdered lava—in 1893 the only made road in the island. I brought up the rear, and at times found it very dusty. The four unused ponies had no harness of any sort, and very nude, shaggy, rough fellows they looked. For three-quarters of an hour we hurried along this road. My guide knew—and I did not—that we had to journey a distance equivalent to 35 English miles at least before we reached our beds. It was a most lovely afternoon, and the *intense clearness* of the air was most striking. After we had ridden some

few miles we left the made road, crossed a stream, or salmon river, named Ellidaar, and then followed a track across the lava fields, the guide still heading the procession and myself in the rear. Suddenly he stopped, and so did all the ponies: "Siggi" dismounted, and then I saw him moving a man from the pathway, or rather, track. He propped him up (in a sitting position) against a block of lava. I said, "'Siggi,' is he *manga drukken*?" He grinned, and said, "Já" (Yow). The fellow was absolutely insensible, and had cut his head tumbling on the lava: lying near him was an empty beer bottle, but I think it must recently have held something more potent than beer! So we left him among the "rocks in ruin," for so may lava be called: during its flow

gases formed in it have exploded, shivering the mass, tilting the sides into the air with jagged edges, and spreading splinters of rock all around. In the centre of a lava stream the surface is fairly even, but the edge is always shattered and bristling. By way of change we now came to bogs, both on hillsides and in the bottoms; we could see them a long way off; they have a dull red, rusty look, intermingled with the snow-white spangles of cotton grass (*Eriophorum Augustifolium*); some of these morasses are lumpy and tussocky and are bad to ride across, others are simply swamps, and must be dangerous shortly after much rain has fallen. Our course winds in and out, round the bases of ranges of barren stone-strewn, treeless hills, amidst which nestle several small lakes. We cross another stream known as "*Lára*" (or Thomssen's River), over which there is now a substantial bridge; we then mounted to higher ground and got a good view looking westward) of Faxafljörð, and saw the last of Reykjavík Harbour. Crows, or corbies, are unknown in Iceland; but the black-coated raven is to be met with in all parts, uttering slow and solemn tones; Icelanders seldom molest these birds. Some of the natives hold them as sacred, as do the Russians consider pigeons—or, as they call them, *golobni* (Anglice, "doves"). A foreigner in St. Petersburg who yearns to see the latter birds beneath pie-crust must go to a restaurant where the cooks and waiters are Tartars (men with no superstitious ideas), and then, under the guise of quails or rabchicks (Russian partridges), he may get a "dove tart." Iceland farmers do no doubt often shoot the ravens when they find them injuring the young lambs, or the cider-ducks. In olden times the ravens were sacred to Odin (formerly the supreme deity of the Scandinavians, and the father of Thor); he had two birds—one for memory, and the other for news—they used to fly abroad during the day, and return during the night, bringing intelligence from all parts of the world. One would perch on Odin's right shoulder, the other on his left, and relate to him everything that was going on, at the same time refreshing the memory of the deity in regard to *past* events. The old Scandinavians never made a journey without taking ravens; Flóki (whom, on page 115 *ante*, I referred to as the first settler in Iceland) took a pair with him when he started on his voyage from Norway; after getting some distance beyond the Faröes he let one off, and it returned to the Faröes. In a while he sent off another, which, after flying around, returned to the ship; sailing on for some days, Flóki again despatched the second black pilot, and he flew away towards the north-west; following him, Flóki reached "Snæland," as it was then called, and, finding the coast ice-bound, he conferred on the island its present grim, weird name. History repeats itself; how similar is this legend to that told in Portugal concerning the bringing from the Cape to Lisbon of the remains of Saint Vincent, when two ravens accompanied the vessel all the way.* So in Egypt the brown rat (*Mus Decumanus*) is at the present time considered sacred; and in many parts of the country, any one killing a members of the genus is severely punished. Iceland without its ravens and ponies, would be like Holland without its canals

* See my paper "Portugal, the Portuguese, and the Vasco da Gama Celebration, 1898," Vol. xv, of the Journal of the Manchester Geographical Society, p. 104.

and barges. This mysterious hoarse-croaking bird, when heard among the desolate and dreary plains over which we rode, recalled the past, and its ill deeds, with which ravens were often superstitiously associated; frequently in the dreary, wild, barren, stony uplands we heard his ill-omened "Croak! Croak!" before we saw his sable plumes. We passed two or three farms, and then beyond was no sign of human habitation; here and there we came to patches of green grass where the finer parts of the rock had been washed down into hollows of the lava beds; these proved too strong a temptation for some of the unharnessed ponies; off one would trot, and "Siggi" had to follow it, while I kept the rest of the cavalcade going, for go we did, we never halted. As a relief from the monotony of the ground over which we hurried came the views of the lofty ranges of mountains ahead of us; the intense clearness of the air diminished their real distance; in form their summits were very beautiful, and differed from any hills I have previously seen, the abrupt outlines produced by volcanic upheaval alternating with long level ridges; in places the ground is carpeted with a coating of silvery moss. Now and again we heard the curlew and plover piping their melancholy cries; they prefer the damp hollows to the higher ground. We passed *Hafravatn* (Goat Lake), and some small sheets of water; and, riding alongside a stream running down *Seljadale* (Shielding Dale), reached a large patch of green grassland at the head of the valley, and here we—as do most travellers to Thingvalla—halted for a quarter of an hour; so soon as the gear was taken off each harnessed pony, he or she threw himself or herself on the ground, lay on his or her back, and rolled, and the ones that had not been saddled (out of sympathy) rolled too; to see twenty-eight ponies' legs swaying in the air was a novel and amusing scene, but one with which "Siggi" must have been well familiar: I laughed so much that even he joined in. After their roll the animals strolled about, eating the sweet green grass; and an Iceland pony does not waste any time when he comes to green grass!

I now changed steeds. I did not like the second pony so well as the white one: but then *he* was a pony amongst ponies. I changed a third time later on, and found each of these three ponies moved differently. Having shifted the saddles and baggage on to the relay ponies, we mounted upward on to the plateau of *Mosfellshæidi* (Moss Fell Heath—pronounced Mosfedth), passing through a rocky glen *en route*. I early learnt it was well to give the baggage pony a wide berth, as the edges of the boxes are very sharp! Moss Fell is a dreary, stony waste, which it takes nearly two hours to cross, riding fast. Here there was no inducement for the animals to break away in quest of grass, and (with much whip-cracking) we hurried along a very decent road that had lately (1893) been constructed across the plain: on either side of it are high cairns, made out of lava blocks, to guide travellers on their way. At last we came in sight of Moss Fell Church—looking like a diminutive Noah's Ark. Close by is the parsonage, with its *tún* surrounding it; this meadowland—almost the only land in Iceland that is cultivated—varies in extent according to the number of cows kept on the farm; it is dressed with dung, and produces the hay which constitutes the food of the cattle during the winter.

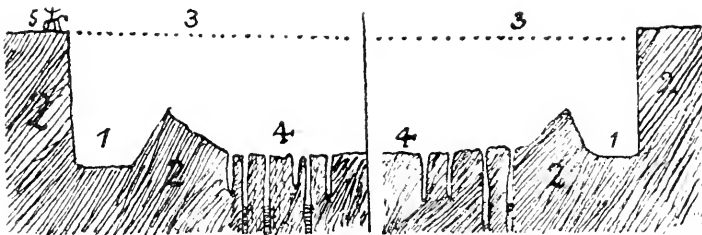
The sun sank lower behind us, and still we cantered; then it disappeared, and, fortunately, the moon appeared. It seemed very strange

and weird galloping across these rough plains, moonlight is so deceptive. It was well the white pony was one of the reserve animals, as I could see him when I lost sight of my guide. I left everything to my pony, never guiding him; at last guide and ponies all disappeared, as if the earth had swallowed them up. We had reached the famous *Almannagjá* (All Men's Rift), so called because when the Althing held its meetings at Thingvalla the people assembled on the outer slope of this eastern wall of the rift. I dismounted and (stiff as I was) scrambled down the steep and rocky path to the valley below. The full moon lighted up the rocks in a marvellous fashion, and I thought afterwards that the huge rocky walls looked more grand in the silvery moonlight than in the daylight. Passing between the cliffs for a short distance we reached the banks of the Oxará (Axe River), and after crossing this (50 yards wide) we arrived at Thingvalla Parsonage at ten minutes past eight. It was now freezing, and the unfurnished guest-room looked very dreary, and felt very cold! "Siggi" went off to look after the ponies; the parson's wife (one of the tallest Icelandic women I saw) prepared one of the two bedrooms that led out of the guest-room. Neither she nor her husband could speak one word of English. When the guide returned I got him to ask for some coffee, but it was not nice; the stove was out of order, and so I had difficulty in keeping warm, and soon went to bed, and slept well after my ride.

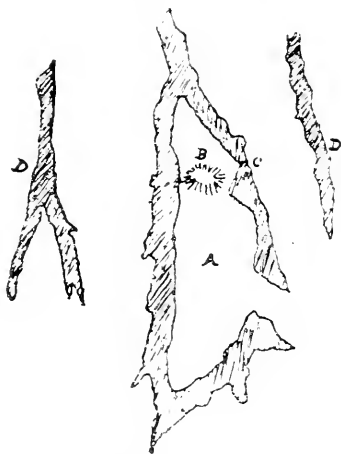
September 30th.

Therm. (Fahr.).	Barom.	Wind.
Air, 37°.	28.6°.	N.

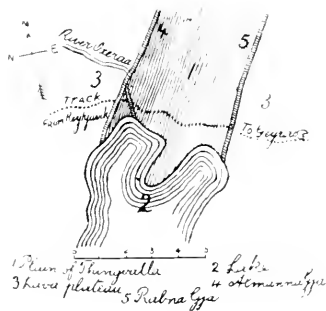
The sun was shining brightly when I got up soon after six, and it shone all day, so that I saw everything under charming conditions; in Iceland one is more dependent on the weather than in more southern lands for enjoying the scenery; in the absence of sunshine and clear air, all that I saw must (and others have said does) look gloomy, not to say hideous. No words can, in my opinion, convey to any one who has not seen it, this wonderful tract of lava, the beauties of which are greatly enhanced by the upper and lower falls of the Oxará. Here are three sketches showing the formation of the valley; they are copied from Lord Dufferin's book, "Letters from High Latitudes," written



1. Gjas. 2. Lava Deluge. 3. Original Surface. 4. Thingvalla Sunk to a Lower Level.
5. Astonished Traveller.



A. The Althing.
B. The Hill of Laws (Lögberg).
C. The Place where Flosi Jumped.
D. Adjacent Chasms.



half a century ago, and referred to previously. He says—and I thoroughly agree with his description—of the Vale of Thingvalla:—

"A lovelier scene I have seldom witnessed. In the foreground lay huge masses of rock and lava, tossed about like the ruins of a world, and washed by waters as bright and green as polished malachite. Beyond a bevy of distant mountains, robed by the transparent atmosphere in tints unknown to Europe, peeped over each other's shoulders into the silver mirror at their feet, while here and there, from among their purple ridges, columns of white vapour arose like altar smoke towards the tranquil heaven."

The woollen gloves which the Icelanders knit and most of them wear looked very funny to me at first: the knitters make no provision for each of the fingers, and the glove (as can be seen from this sketch I have made of one in my possession) has two thumbs. I brought back several pairs of these gloves, made from the natural, and not coloured, wool of the Iceland sheep; they are the most comfortable hand coverings I ever put my hands into. So far as I could make out—and most travellers differ on the subject—the gloves are built in this way to enable the wearer to turn them about. The two-thumbed glove is generally styled in Icelandic *vetlingur*, plural *vetlingar*; sometimes these gloves are termed *belgretlingar*, in order to distinguish them from gloves with fingers (*fingeravetlingar*). The old word *glófi*, plural *glófjar*, is not now much used.

My guide, who always wore his two-thumbed gloves—every Icelandic worker in his gloves—took me to see the *Lögberg* (Law Rock, "B" in the above sketch); it is an isolated crag between

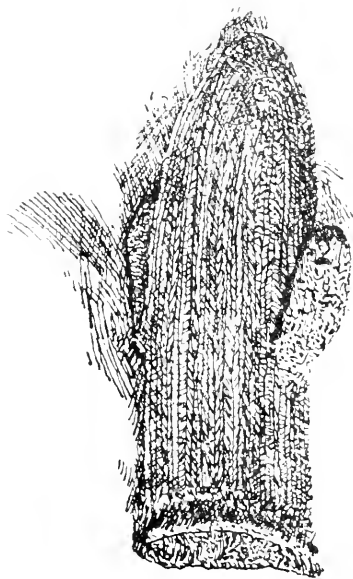
"From crag to crag the signal flew."—Sir W. Scott.

two of the awful rents in the lava-bed. We looked sheer (Icel., *skjerr*) down (on either side) into the chasms, which have water in them to

within about twenty feet of the surface; the sun lighted up these depths, and the water, full of colour, glistened below us.

“The streamlets laughed, and glistened.”—*Longfellow*.

The *Lögberg* is situated on the same side of the Oxará River as the church and parsonage—that is, on the opposite side to the All Men's Rift. It is reached by clambering over two or three hundred yards of hilly ground. The water flows in and out of the fissures on either side of it, by underground channels, and almost converts the *Lögberg* into an island. It is not a place for any one with a weak head to visit. The administration of public justice on certain hills and eminences was not only common throughout Scandinavia, but was also practised in (amongst other places) Scotland; for instance, take Berwick



ICELANDER'S GLOVE.

Law, in Fifeshire, near North Berwick, to the summit of which mountain I have been. On the surface of all the rocks at Thingvalla were bilberries, the leaves of which had in the autumn turned scarlet; the plants were covered with bright red berries. There is—and it is difficult to avoid repeating the fact—a marvellous effect in the *atmosphere* of these northern regions that I have never seen elsewhere; it is so pure that the strong contrasts of black, brown, and red lavas and the snowy mountains make grand pictures.* Fresh snow had fallen on the most striking looking of the mountains, *Skjaldbreid* (Broad Shield), and, on this autumn morning, its sun-lit face looked like a gigantic escutcheon, on

* See the realistic drawings in “A Pilgrimage to the Saga-steads of Iceland.” By W. G. Collingwood, M.A., and Jón Stefánsson, Ph.D., Copenhagen. (Published by W. Holmes, Ulverstone, 1899.)

which were marshalled and displayed silver lines of beauty, and shadows forming dark fesses, or bars. It is not only that the scenery here is grand and wild, but the Thingstead is hallowed by historical associations of no common order. By the daylight I could see that the plain (over which I had ridden the previous evening) suddenly terminated, and there was a sheer drop of close on 200 feet into the lower plain of Thingvalla. The lava is split and splintered into most weird chimney-like forms, that look as if they were toppling over. The valley is about eight miles from side to side, and very green and peaceful it looked, with the bright river running through it, contrasting with the dark masses of lava rocks. We could from the heights see the different layers of lava, as they had flowed one above the other, and so formed the plain, the subsidence of which afterwards caused the two great rifts, and the innumerable small ones that make one walk here with care! In the distance is the largest of Iceland's lakes (Thingvallavatn), covering an area of nearly forty square miles. It is impossible to adequately convey to the mind of any person who has not gazed on the scene the wonderful novelty of the landscape. The uppermost of the layers of lava has been greatly worn away by the weather, and it is only represented in its former height by a few large peaks or pointed summits where ravens (Icel., *hráfnar*) sit croaking! This is the spot where in olden times the Althing held its meetings, on a sunken plain guarded by chasms that, owing to frost and earthquake, had left shattered cliffs, and had choked the rifts with *débris*. After visiting the cascade of the Oxará we returned by a small black church—on a mound—overlooking the lake, to the parsonage built of lava blocks. In the Almannagjá are some low walls, now used as sheep-folds; the members of the Thing used these to dwell in, when they attended the Althing. Gustave Doré's illustrations of Dante give some idea of the wild scenery of Thingvalla. I secured the bed, in which I slept soundly, for the next night but one; and, leaving a note for my boat comrade, who, with "the veteran," *expected* to arrive that night, I set off for the Geysirs about 9-30 a.m. on the morning after my arrival. A mile up the valley we turned eastwards, and crossed a lava-bed, torn and convulsed beyond anything I had previously seen; in the holes and gaps, where the soil had gradually accumulated, were growing stunted willows and birches—about three feet in height—this is called the "Thingvalla Forest." The fissure on the north side of this great valley, called Hrafnagjá (Raven's Cleft) is not so deep as the Almannagjá, and is crossed by means of a road made of immense lava blocks; it is about one hundred feet deep, and the rocks are extremely jagged and distorted. A climb of a quarter of a mile brought us to the level of a higher lava-bed, wilder and more desolate than that on the other side of Thingvalla; ashes and scoria are mingled with beds of soft brown and yellow tufa, where are caves used as sheepfolds. I entered one (to please "Siggi"); over it was a wall of rock; it was low-roofed and wet; on its wall, and about the entrance, were carved many initials! Notwithstanding the awful desolation of the scenery, it was far more varied and grand than that I had seen yesterday; the great coils and twisted streaks of hardened lava were lying about on the surface, and looked as if they were the result of a comparatively recent eruption.

We passed by hills of a conical shape and came in sight of a great marshy plain extending for 55 miles south to the sea. Riding along Laugardalur (Hot Spring Dale), we arrived at a farm close to the north-west corner of Laugarvatn (Hot Spring Lake); this small lake is full of hot-water jets. The large columns of steam ascending from the midst of an extensive marsh to the south of the lake mark the sites of other groups of hot springs. We got, in 1893, some good milk at the farm, and some coffee and sugar-candy; my guide put the latter on his tongue, and let the former ripple over it! I got him to ask the farmer's wife to have some fish caught for us, and told her what time we should be returning to-morrow. It is a most singular sight to see the puffs of steam all around blown away by the wind. Some fountains near the farm throw up water about two feet, while others steam quietly; one



DANIEL DANIELSSON, OUTSIDE HOUSE INJURED BY EARTHQUAKES.

of these was going puff! puff! puff! like a gas engine. The soil around these vents is clay (grey, blue, and red), and contains sulphur; the jets empty themselves, by a brook, into the lake; the smell of rotten eggs, such as comes from the Harrogate waters, shows the water contains sulphuretted hydrogen in solution. In the lake itself, they told me, there is a stream of hot water spread over the surface, but the body of water below is very cold. In 1896 my guide (Daniel Danielsson) and myself called at this farm on our return journey from the Geysirs, and I on that visit purchased there a very old measure of weight, or balance, similar in form to a steel-yard; the body to be weighed is suspended from the shorter arm of a lever, which turns on a fulcrum, and a counterpoise is caused to slide upon the longer arm to produce equilibrium, its place upon this arm (which is notched or graduated)

indicating the weight. After leaving Laugardalur farm we came to grass-lands; here there are paths worn deep through the turf by the animals travelling along them; and a long man on a short pony has to take care his feet are not caught in the sides of the rut, or he may be thrown off. It is no use attempting to guide an Iceland pony; let him or her have their own way, and some of the lady ponies are the best steeds; for bridges the ponies have a great aversion, and will not cross by them if they can possibly avoid doing so. We stopped in a grassy valley near the cave to change horses; it was windy here, and the light lava dust or sand (amongst the grass) was blown about in smothering clouds. We crossed several small rivers three or four feet deep; the water was icy cold, and on the summit of many of the mountains we were passing beneath was snow and ice. Some of the extinct volcanoes* were as black as coal, and most varied in form; the fissures caused by the cooling of the lava form one of the greatest obstacles to the progress of the traveller; they are often treacherously hidden by a covering of grey moss, almost the same colour as the lava. The general appearance of the lava-beds reminded me of the sea: there are undulations, wave crests, and hollows; at times there is a regular choppy sea, and occasionally blocks of lava are heaped up on other blocks; what a troublous struggle there must have been when all this was forming!

“A tall ship tossed in troublous seas.”—*Spenser*.

Some of the higher mountains are quite flat on the summit, and snow-clad.

After quitting the dusty meadows—and such trying dust as that formed from lava I never before got into my eyes and ears—we struck across a high hilly region (winding in and out amongst the mountains); here lapse of time has crumbled the lava, and the red volcanic soil was covered with herbs and heather. We saw many redwings (*Turdus Ilvaens*); the Icelandic name is *skógar thrústar* (forest thrush). Following the bases of the mountains which enclose the great valley wherein the Geysirs lie, the road (or track) keeps above the meadows (in order to avoid the marshes), and about 4 p.m. we reached the *Brúará* (Bridge River), a large torrent running in a basalt bed. There are a series of rapids for some hundred yards, while right in the middle of the river is a sort of “horse shoe” fall. All, or nearly all, the waterfalls in the island are V-shaped. The river is about sixty yards wide; we forded the shallows, and crossed the chasm on pony back, by means of a narrow wet bridge. The river makes another plunge, and passes afterwards through two high natural gateways of rock. Halting a while after we had got over this stream we saw an Iceland falcon; it has a lovely plumage in the autumn and winter, and in many parts of the island is very common. About one more hour’s quick riding brought us to the farm called *Múti*, where my guide, in 1893, advised me to stay—though not so near the Geysirs as *Haukadalr*—but he said it was much the cleaner of the two farmhouses. Everything was clean; there were pots of nice flowers in the window, and my bed was in an alcove off the guest-room. I was not long before I got into it. The flowers were

* See “Volcanoes Past and Present,” by Edward Hull, M.A., L.L.D., F.R.S. (Walter Scott Limited, 1892.)

pansies, geranium, and musk. The farmer's wife was a very nice old lady. There were evidently three generations of folk on this farm. The low lintels were a great nuisance, I was continually bumping my head against them. The eggs and milk were excellent. On my re-visiting the Geysirs in 1896 I stayed at Austurhlíð, where there is an excellent guest-house, and good attendance. Steinunn, whom the sister of Consul Paterson knew well, was daughter of the farmer at this place.



STEINUNN, AT DOOR OF GUEST-HOUSE, AUSTURHLÍÐ.

October 1st, 1893. The barometer was rising when my guide and myself set off to the Geysirs. Professor Tyndall constructed in his laboratory a working model of a Geysir, which model is fully described in chapter iv. of his work on "Heat."* It was a frosty morning. We passed over some very wet, marshy ground, and in half an hour arrived at the Geysir Farm; in order to make sure of getting back to the capital in time I could only spend a little over two hours here. The farmer wanted to know if he should feed—that is, throw sods into—*Strokkur* (The Churn), for which he wanted two kroner. I replied if he would make it spout whilst I was there I would give him two kroner; but he would not work on the "no-cure-no-pay principle." The Great Geysir "Siggi" said had worked very seldom this year. The following are copied from Lord Dufferin's book, and show the mode in which (in his opinion) these eruptions take place. The Geysirs rise out of ground near the base



* "Heat a mode of motion," by John Tyndall, D.C.L., L.L.D., F.R.S. (Longmans Green and Co.)

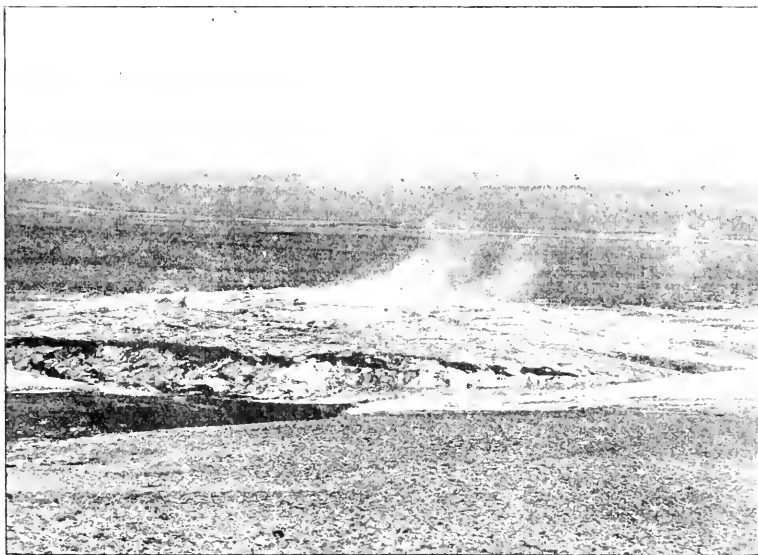
of a hill about 300 feet high; they are on red clay soil (Icel., *hveraleir*—*i.e.*, hot-spring clay), which is nearly level, sloping a little from the hill, and covering about 50 acres; the springs are over 100 in number, and of every size and form: some large, others small. The smell of sulphuretted hydrogen is very strong. Steam is always rising, and we saw that to perfection on the frosty morning. I stood on the edge of the basin of the Great Geysir and looked in: its basin is at the summit of a mound built up (to a height of 40 feet) of silica (or flint), a mineral that the geysir water holds in solution, and which is deposited in layers—as enamel—from the water that is constantly overflowing. The basin is nearly circular, and was, when I first saw it, full of water to the brim (as it always is, except just after an eruption); it is between 60 and 70 feet across. Geologists say that in the centre of the basin is a cylindrical well or tube—as shown in the drawings copied above, 10 feet 4 inches in diameter, and 82 feet deep. At first I stood on the lee side of the basin of this one of the world's wonders; all of a sudden there was a trembling under foot and a noise like subterranean thunder. My guide rushed up and pulled me away, suggesting that I should keep to windward of the Geysir. When I first looked into the basin the water was as smooth as possible, the vapour arising from it being carried away to the south-west: after this rumbling the water in the centre rose a foot or 18 inches, and then subsided; this occurred several times, always preceded by underground thundering. The colour of the water over the funnel is an intense blue-green; at the edge I dipped my finger into the water, but quickly withdrew it. I (by the aid of a piece of string) threw my thermometer, which has a scale graduated up to 212 deg. Fahr., two or three feet from the edge, and the quicksilver *at once* ran to the top of the glass tube! I brought home some silicious stones I knocked off the basin: they were too hot to handle at first. I did not in 1893 see an eruption, but in my paper, "The Earthquakes in Iceland, 1896," previously referred to, is described an eruption of the Great Geysir witnessed by myself and my guide in 1896. I am pleased to find that my views and opinions (as set out in that paper) are confirmed by Dr. Th. Thoroddsen, the well-known Icelandic explorer, accompanying whose latest papers* is the most recent map of the island.

Strokkur I looked into (through the wooden bars which on my first visit the farmer had placed over it to prevent any one else but himself feeding it): at a depth of 15 feet was the hot water turning round rapidly; it had a continuous rotary motion, hence its name: it is about 80 yards from the Great Geysir, and since the quakes of 1896 has ceased to erupt. The "Little Geysir," situated a short distance south of Strokkur, has a tube about two feet in diameter, and it was the only one which during my short visit in 1893 spouted; it sent up a jet about nine feet, and the whole time I was there puffed and spit, and now and again spouted three or four feet. The whole ground is covered with small vents and hot springs, known as solfataras, where the people at the farm boil their food and wash their clothes. These "water volcanoes," as Prof.

* "Explorations in Iceland during the years 1881-95." The Geographical Journal, Vol. xiii., Nos. 2 and 5.

Bonney terms them, are fully described in his "Story of our Planet," pp. 277 *et seq.*, and the author gives a section of the Great Geysir,* based on the opinions and judgments of successive travellers.

To describe the exquisite beauty of the hot spring called "*Blesi*" (with its marvellous transparent blue-greenish water) and the silica-frosted craggy roof above is impossible. Were it not for the wreaths of steam that curl from its surface where exposed, one could fancy you were looking at the most beautiful *cool* depths of a grotto into which you yearned to dive. At first it appears to consist of two pools, separated from one another by a narrow wall of silica; but (on looking down into the limpid water) you see that this wall is a natural bridge, under which one looks at the crystal depths of the pool: the sides are all white silica; and, down below, the water is a lovely pale cobalt tint. Two visitors once resolved to boil a sheep's head in *Blesi*: having well secured the "jenny" by a rope fastened to the horns, they lowered it into the depths of this exquisite spring; after a while they hauled up, but so well had *Blesi* cooked the head that nothing appeared on the surface except *two black horns!* The picture below of the Great Geysir is from a photograph taken by Mr. Howell, and shows the mound formed by the sinter, or silicious matter, thrown up into the basin, and on the occasion of eruptions deposited in the form of thin laminated cakes around the hot spring.



THE GEYSIR, ICELAND (SEE VOL. XV. OF "JOURNAL").

* "The Story of Our Planet," by J. G. Bonney, D.Sc.; Professor of Geology in University College, London, and Honorary Canon of Manchester. (Cassell & Co., 1892).

A DESCRIPTION OF THE UKAMBA PROVINCE, EAST AFRICA PROTECTORATE, AND ITS PROGRESS UNDER BRITISH ADMINISTRATION.

(See Map.*)

By MR. JOHN AINSWORTH, C.M.G., Her Majesty's Sub-Commissioner and Vice-Consul for the Province of Ukamba, East Africa.

[Addressed to the Members in the Mayor's Parlour, Friday, August 3rd, 1900, at 3 p.m.]



MR. JOHN AINSWORTH, IN ZANZIBAR COSTUME.

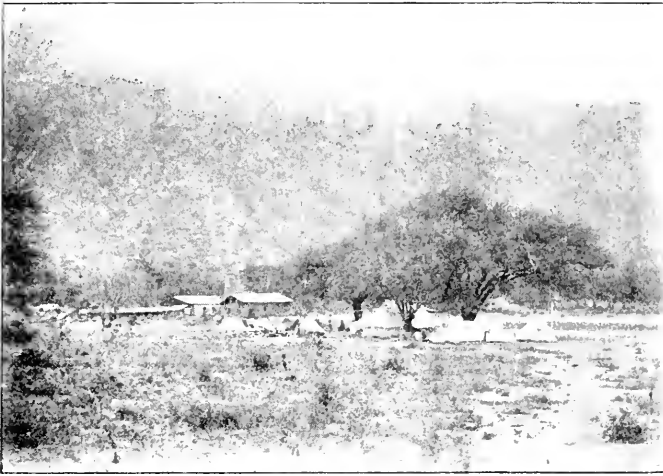
THE East Africa Protectorate is divided for administrative purposes into four provinces. With the exception of the Ukamba Province, the one of which I am going to speak, and of which I have been in charge for some years, all the provinces have a sea littoral.

The other provinces are named Seyydiah, Tana-land, and Juba-land.

* The Map is copied from the original, drawn by Mr. Ainsworth, and placed at the disposal of the Society by His Majesty's Foreign Office.

The Ukamba Province is bounded on its Eastern sides by the provinces of Seyydiah and Tana-land, on its Southern side by the Anglo-German boundary, and on its Western and Northern sides by the Uganda Protectorate and the undefined region of Lekipia.

This province is the only one which has not means of communication from one point to another by water, and until the advent of the railway we depended for our transport on porters, mules, donkeys, oxen, and camels. The want in the past of some cheap and reliable means of transport has kept the country back; now, however, the rails traverse the province from Maungu to the Kikuyu Escarpment, a distance of about 280 miles.



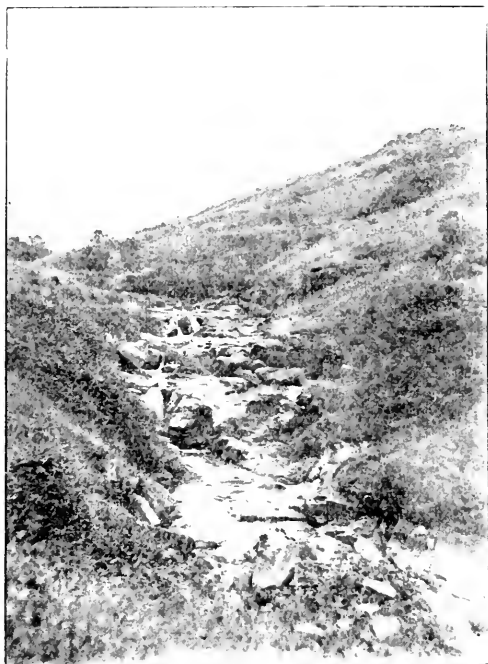
VIEW OF TEITA DISTRICT STATION (NDU).

The lowest elevation in the province is about one thousand feet near Maungu, while the highest, not including Kenia, is about 7,000 feet.

Generally speaking, the country lying between one thousand and three thousand feet consists of flat stretches covered with scrub, thorn trees, baobab trees, and aloe fibre plants; here and there are prominent mountains or huge masses of rock; we have, however, in three instances, inhabited and cultivated districts close to these low lying areas, one is Teita with its rugged and severe hills and fertile valleys. one is Taveta at the foot of Kilimringaes, the other is Kibwezi and M'Songoleni, but outside these areas the country up to 3,000 feet is very uninteresting from an agricultural point of view.

From Kibwezi is commenced an ascent to the M'Kindu and Simba plains, where, within a distance of 15 miles, there are three excellent streams of water.

From Simba the ascent is very gradual to the Athi and Kapte plains: these plains are from 5,000 to 5,400 feet above sea level, they are bracing and healthy, and abound with a large variety of game. To the East of the Simba and Athi plains lies the mountainous district of Ulu (Ukambani), beyond this again flows the main "Athi" river which divides Ulu from Kitui and Mumoui.



VIEW IN THE ULU COUNTRY.

The Ulu district is a very mountainous one, the highest peaks are about 7,000 feet, there are several streams and springs in the country and an abundance of water, but other than the "Athi" there is no important river. Kitui and Mumoui are the older haunts of the Wakamba. Kitui and Mumoui together form the administrative district of Kitui, both these localities are mountainous, the general altitude is lower than that of Ulu. Mumoui is practically on the banks of the Tana river.

The two remaining districts of Massai-land and Kikuyu are situate at the western side and northern end of the province.

Massai-land comprises practically all the Kopte and Athi plains. The Kikuyu country consists of a series of spurs and ridges running south-east and east from "Settima" and "Kinangop;" these spurs terminate on the plains, between each ridge there exists a stream of good water which affords an abundant supply of water to the country. These ridges rise from 5,000 to 7,500 feet high, and they look more like European scenery than what one imagines of Africa. A feature of part of the Kikuyu country is the abrupt escarpment on the western and north-western side; the country to the east and south-east falls from the top of the escarpment to the plains, while the escarpment falls abruptly to the west for about 1,500 feet and terminates in the Great Rift Valley described by Doctor Gregory; the scenery, as seen from



THE TOWAKI RIVER, ULU.

the top of the escarpment, is some of the grandest in the world, and includes two extinct volcanoes, viz., "Suswa," which should be called "Donyo Nyuki" and "Longonot" which should be called Lononot; an idea of the vastness of the view in front of you at this point can perhaps be gathered when I inform you that these two mountains rise to about 6,000 feet each and have fairly extended bases, and yet they appear only small points of interest in the huge and vast valley. The railway has constructed a temporary "shoot" down the side of the escarpment, while the permanent line works its way round the face of it on an easy gradient to the shoulder of Lononot.

There is an abundance of water in the province, but there is no important river, the largest stream is the "Athi:" the lower reaches of this river are from forty to fifty yards wide, and the

water is fairly deep, but on account of the many falls along the course it is impossible to navigate it.. All the streams from Ulu



VIEW ON THE ATHI RIVER.

and Kibwezi run into the Athi, and all the streams below the headwater of the "Thika-Thika" in the Kenia district also run into the Athi.



VIEW OF THE ATHI RIVER, BETWEEN KITUI AND ULU.

The Tzavo river originating from Kilimanjaro joins the "Athi" at the point where the river takes the name of "Sabaki."



VIEW OF THE TZAVO RIVER.



VIEW OF THE TZAVO RIVER, NEAR THE RAILWAY BRIDGE.

The headwaters of the Tana river originate in the province, but the main stream itself flows through the province, to which it lends its name.

The drainage of the country is from west to east and from north to south and south-east.

All the drainage of Mount Kenia and Northern Kikuyu falls into the Tana.

There are two streams, called the "First" and "Second" Kedong, issuing in a westerly direction out of the Kikuyu escarpment: these flow down the Kedong Valley and join one another about three miles down their course. From this point the stream is traceable for about 14 miles, when the water disappears in a swamp at the base of a cliff of lava, which forms an



ON THE ROAD TO NGONGO BAGAS—MASSAI COUNTRY.

abrupt end to one of the lava fields which at one time boiled down from "Suswa," or "Donyo Nyuki" as it should be called. I anticipate that at this point there is a subterranean passage to the bowels of Donyo Nyuki, and that the water finds its way there, and so is part of the cause of the active steam vents at present existent.

"Kenia" is our king of mountains, its bigger brother "Kilimanjaro" being in German territory.

A great feature of East Africa and of the Ukamba Province in particular is the vast expanse of plains and the great variety of game found there, a sight of the game alone is well worth a trip to East Africa. I am pleased to say reserves and regulations for the preservation of game have now been in existence some

time, and I trust that the late International Conference on this subject will tend to make such reserves and regulations more general.

The Province is inhabited in part by the following tribes: the Wa Teita, Wa Taneta, Wa Kamaba, Wa Kikuyu, Wa Massai. All these with the exception of the Wa Massai are undoubtedly part of the great Bantu race. To what race the Massai belong I am not quite satisfied; they are probably of Hamite descent. They exhibit considerable intelligence, and are distinct from the other tribes of the province in that they recognise a para-



WA KAMBA MARKET WOMEN.

mount chief. In many ways the Massai are the most interesting natives in East Africa.

The estimated average population is 800,000, of which number the Wa Kamaba form by far the greater part. The tribe with the fewest numbers is the Massai. The total area of the Province is about 38,000 square miles. Of this area only about 10,000 square miles are inhabited, leaving the remainder about as follows: 9,000 square miles scrub and poor lands, 19,000 grazing and game lands, much of which is fit for cultivation. The present locations occupied by the natives are the most fertile parts of the country.

The Wa Kamba and Wa Teita are hill tribes from choice.

The Wa Kikuyu and Wa Taita are forest tribes.

The Massai inhabit the plains.

All the tribes except the Massai are both agricultural and pastoral—the Massai are purely pastoral.

The Wa Kamba and Wa Kikuyu, also the Wa Teita, amongst themselves exist under the most primitive form of patriarchal government. Each tribe has a regular recognised code of law, but such law is administered in each village by the Elder of that village. A village is a collection of a certain number of

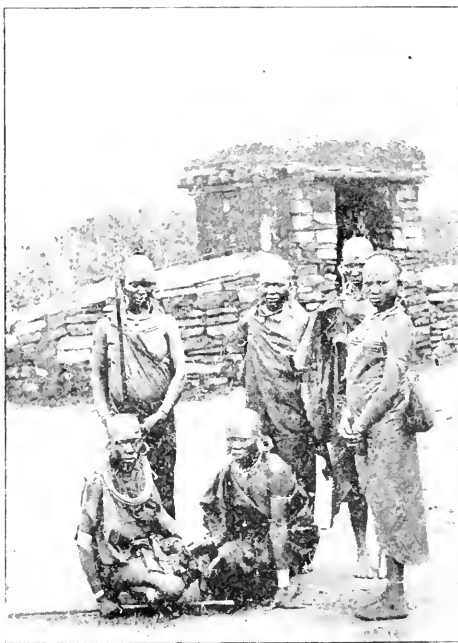


WA KAMBA YOUTHS.

huts enclosed within a fence or other recognised limit. Each village is occupied by an Elder, his wives and children, and sometimes by some of their male relatives. So many villages comprise a division of a district. In matters concerning more villages than one the Elders of the villages of that division meet and discuss the affairs. If no agreement could be come to the villages concerned would fight it out. There is no regular recognised system of unity amongst the different divisions.

I personally became acquainted with the Province in 1892, when Machakos was about two months' journey from England.

From 1892 to April of this year, when I left on leave, I have been constantly in the country. (The journey home can now be performed in 20 days.) When I first went up country I found an extraordinary state of affairs there. Each district or tribe was the foe of its neighbours, also each small division of district fought against its neighbouring division, and so inter-tribal and interdivisional warfare was continuous. The Massai in turn considered each and any district owning cattle and goats to be their legitimate prey. The advent of our administration under the late Chartered Company was resented by one



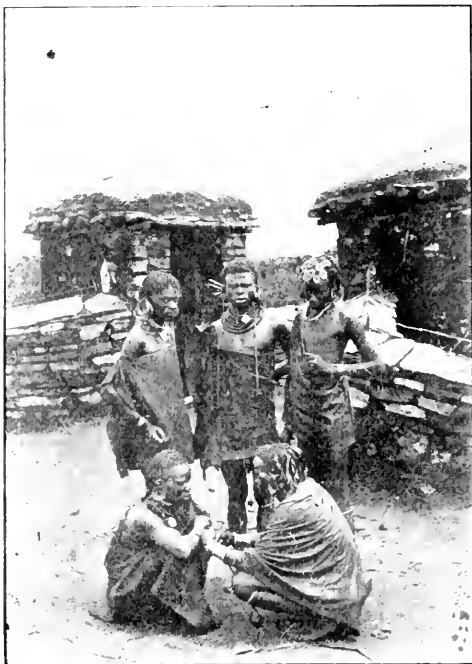
WAKIKUYU WOMEN.

and all. This resentment in so far as the Wa Kamba, Wa Kikuyu, and Wa Teita were concerned arose purely from their old conservative idea of things and their dislike to any new order, and so far as the Massai were concerned they viewed us with some idea of being rivals to themselves.

For some considerable time we met with many difficulties and disappointments. I can assure you that it is at times uphill and tiring work breaking down walls of barbaric ignorance and superstition and introducing in their places an acceptable form of civilisation. I remember the time when women and children and old people screamed at the sight of a European,

and ran away in fear and trembling, and armed warriors looked at us with a scowl. I learned afterwards that they had an idea that Europeans ate children, and caused extraordinary things, such as eclipses, to happen, that we caused disease and visitations of locusts and other things. During this time it was not safe for any European to go anywhere without an escort of at least twenty rifles, our interference in any of their disputes, their raids, or their slave dealing was severely resented.

We have now, with the help of an Unseen Power, overcome most of these difficulties. Now under normal conditions inter-



WAKIKUYU MEN.

tribal warfare is very rare; interdivisional and personal disputes arising in districts under our actual influence are always brought to the district Courts for adjustment. The Massai no longer raid their neighbours. The people generally will report any cases of small pox or cattle sickness, and generally assist us in any scheme for its suppression. A fairly good native police force has been raised, and a company of Massai has been raised and added to the East Africa Rifles.

Our Post-runners are natives. Native servants (the majority not very good ones, I admit) are procurable: they will improve in time.

Labourers are procurable after the sowing of the seed up to the harvest time.

The natives have helped us in making fairly good roads, along which they, who never before travelled anywhere unarmed, generally travel unarmed.

People of one tribe who only a few years ago were the bitter enemies of a neighbouring tribe will travel without fear into their old enemies' country armed simply with a letter or pass from a District Officer.

An interesting fact is one connected with vaccination. The Government started a system of wholesale vaccination, and the natives have taken so to the idea that some thousands have now been vaccinated. I have been present when mothers have brought their babies to be vaccinated, and they were quite



NATIVE POLICE, RAISED IN THE PROVINCE.

eager that the operation should be performed notwithstanding the cries of the frightened youngsters.

I do not intend to go into all details in this connection, but what I have related will serve to show you what has been done in East Africa during the last few years.

A matter worthy of attention is that in 1892 nearly all the natives dressed in goat skins, and their ornaments consisted of beads and wire, which they purchased with food or looted from Swahili trading caravans. About 1895 fully 50 per cent of the people of Ulu and Kitui were wearing cloth; the people of Teita being much nearer the coast had taken to cloth at an earlier period. In 1897 the Wa Kikuyu and Massai had taken to wearing cloth on a large scale. Now there is a large demand

for blankets, policemen's and soldiers' old coats, fez caps, and umbrellas, independent of the demand for grey and coloured cloth.

In 1898 I induced some Indian traders to open shops at Machakos, when we introduced a cash medium of exchange (rupees and pice are the coins circulated). Now money is in common use in the country the natives sell their produce for money and then buy what they require from the Indian shops. A native will travel miles to a bazaar if he finds or fancies he can buy cheaper there than he can locally.

In 1899 the railway passed into the Ulu, Massai, and Kikuyu districts, and has brought more civilisation pressure to bear.



HILLS NEAR MACHAKOS, WITH NATIVE VILLAGE.

The general advance has certainly been rapid, but I trust it is secure and lasting.

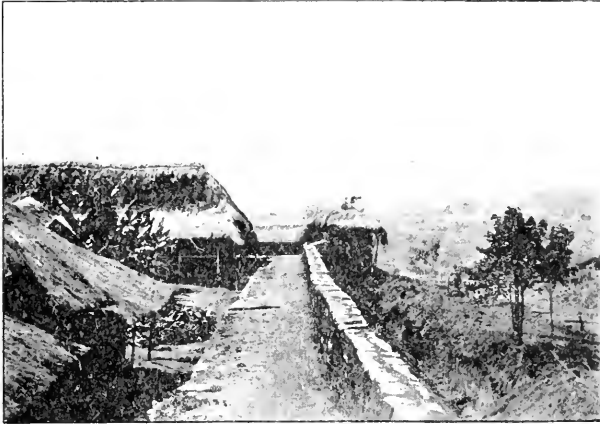
A matter to be noticed is the rapid development of certain localities in connection with the advent of the railway. Nairobi, originally consisting of only a few Massai kraals, is now a big township of about eight thousand inhabitants. Certainly for the present most of this population is kept going on account of the construction of the Uganda Railway, but the traders are taking up plots of land on leases, and undoubtedly the place is becoming a trade centre, and in a short time the traders will develop the trade of the surrounding country. Nairobi should become the natural centre for trade with all the Kikuyu country, including Kenia and Lekipia, and also of northern Ulu.

The administrative headquarters of the Province, originally at Machakos, have been moved to Nairobi. The reason for the removal was that the railway passed Machakos at a distance of 21 miles, whereas Nairobi became the headquarters of the railway.

Machakos is, however, connected with the railway by a good waggon road, and will soon have a telegraph line connecting it with the main line to Mombasa and Nairobi.

Another point which has developed is Voi in the Teita district. Voi from being an absolutely unknown and uninhabited spot has now a fairly large bazaar, and carries on a fair trade with Teita, Taueta, and Kilimanjaro.

Kibwezi, in Kikumbuliu, has also developed into a trade



EASTERN WALL OF FORT MACHAKOS.

centre, and carries on considerable trade with Kitui and Mumoui.

The products of the country are hides, cattle, goats, ivory and horns, tobacco and native grain. It must, however, be remembered that the country is practically undeveloped, and it is only now that any proper attempt is being made to open it up commercially. With development and enterprise the country should produce large quantities of fibres, coffee, wheat and barley, and gums.

There are certain matters which have happened in East Africa, such as cattle plague, famine, and small pox, which would need a considerable amount of space to explain in all their detail. Such troubles are, however, bound to decrease in severity the more the native advances. Eastern countries are

peculiar in the fact that visitations of famine and disease occur at certain intervals, but I do not believe that in the Ukamba Province we have, what I might term, a famine country. When the natives become more provident and realise the natural resources of the country, and take advantage of the natural features and utilise them for the reservation and preservation of water and irrigation, then under ordinary circumstances there should be little possibility of famine, and as far as cattle sickness is concerned this will become less severe after each outbreak, and I trust that with the help of scientists the country will eventually get clear of it altogether.

With regard to the fertility of the country I do not propose to deal with any theory; I shall only state actual facts. The



RHINOCEROS SHOT AND PHOTOGRAPHED BY DR. S. L. HINDE.

natives grow maize, millet, peas, beans, sweet potatoes, bananas, yams, tobacco, sugar cane, and various vegetables. I have grown, and other officers, missionaries, and settlers have grown and are growing in Ulu, Kitui, and Kikuyu almost every variety of European vegetable in an almost perfect state. I have seen produced, and their production is an everyday matter now, cabbages weighing 10lbs. each, cauliflowers weighing 11lbs. each, and beautiful, white mealy potatoes equal to any potato I have ever seen in England—in fact, they are very superior to any potato I have seen in England since I came home on leave. Certain settlers are now doing a good business in potatoes by selling them in the local bazaars. Onions also grow to perfection in the country.

There are two gardens near Machakos which have been laid out with a large variety of fruit trees introduced from Australia.

Some five years ago I reaped at Machakos a fair quantity of excellent wheat and barley. The seed was distributed, with the result that now most of the settlers and missionaries resident in the country are eating bread from local grown wheat.

Most excellent coffee is being grown at Kibwezi.

Aloe-fibre plants abound in the uninhabited parts of the country.

Tobacco and sugar-cane are grown for native consumption, the former is made into snuff and the latter into native beer. A large quantity of sugar-cane is also chewed.

The grazing lands of the plains and the highlands afford good feeding for cattle and game. On the Kikuyu ridges and on the Ulu hills one finds springy turf and clover. Bracken and bramble are commonly found.

In the Kedong the river sides are covered with most luxuriant maidenhair fern.

The season's average rainfall and average temperature are as follows:—

January and February are generally hot months, with very little rain.

March, April, and half of May are generally rainy months, with an average rainfall for the period of about 34 inches.

The latter part of May, with the months of June and July, cloudy skies, cold, with occasional light showers.

August, September, and October are hot months, with rain at the end of October.

November and December are rain months, average fall for the period 16 inches.

The total average rainfall is 46 inches.

The average thermometer reading for the cool month is 66° Fahr.; for the hot months it is 73°. The highest temperature ever registered in the shade at Machakos was 85°.

The prevailing winds are south and south-east.

The wholesale trade is mostly in the hands of Indians, and three or four British and German firms, while the retail trade is carried on by Indians, Javanese, Greeks, and Swahilis.

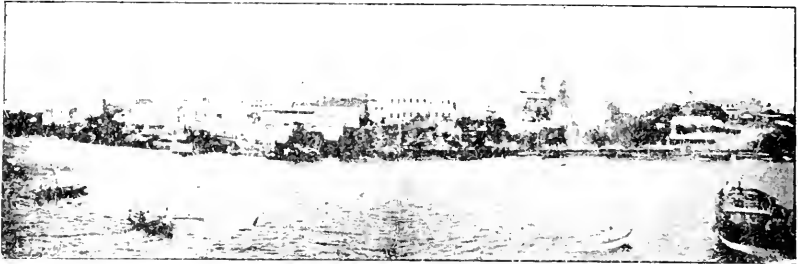
The port of entry for the Province is Mombasa.

The main artery of the country will be the railway.

The principal trade goods required by the natives are as follows: Grey cloths, blue cloths, large handkerchiefs, second-hand police and soldiers' coats, fez caps, blankets, umbrellas, brass wire, fancy beads (Oriental pearls).

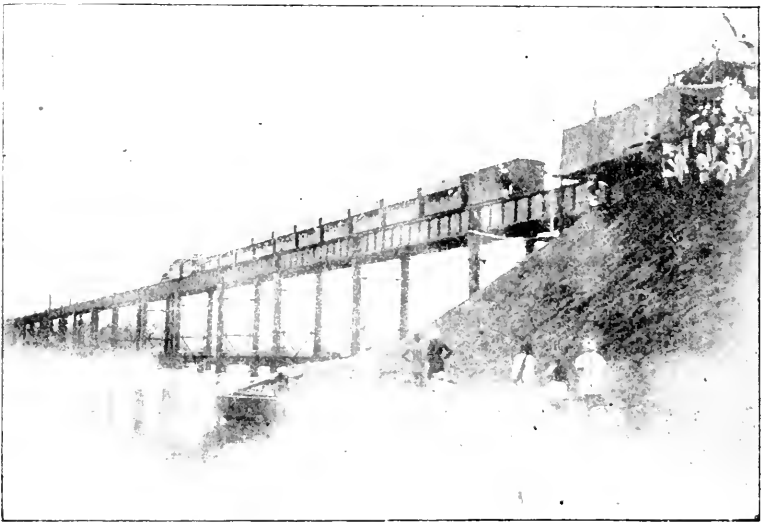
Most of the trade cloths used in East Africa come from India and Germany. The greys made in India are apparently cheaper than those made in Lancashire, and at the same time suit the

market quite as well. My experience has been that a native generally prefers a piece of Lancashire cloth when placed against an Indian or a German manufactured piece, but he will not give the additional price necessary for its purchase.



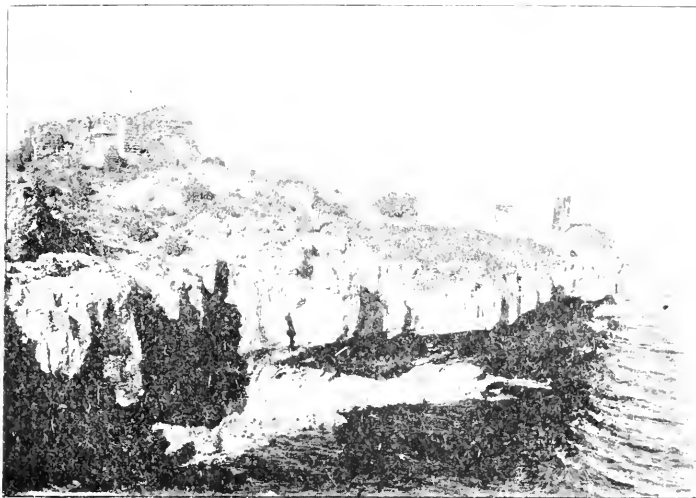
PANORAMA OF MOMBASA.

It seems as if there never had been any real attempt on the part of Lancashire to work up the East Africa markets. The trade may not be very important or large now, but I trust it



FIRST RAILWAY TRAIN CROSSING SALISBURY BRIDGE, UGANDA RAILWAY.

will not be long before it is so. In the mean time, however, German firms are pushing in their goods and getting a hold on the markets.

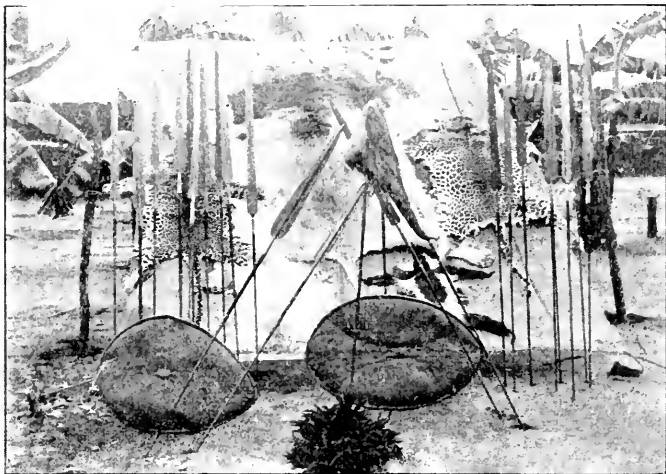


BATTERY POINT, MOMBASA. SHOWING OLD PORTUGUESE FORT.



ARAB SEWALIS, PHOTOGRAPHED BY MR. PORTER.

East Africa will naturally continue to trade largely with India. It is so close to Bombay, and there are so many Indians resident and trading in the country.



"TROPHIES" COLLECTED BY MR. AINSWORTH.

Geographical Work of the French Jesuits in China.—The recent contributions to our geographical knowledge of China, made by the members of the French Jesuit Mission in the provinces of Ngan-hwei and Pe-chi-li, are summarised by M. Fauvel in the August number of *La Géographie*. The work of the fathers, which is most generally known, is that carried on at the meteorological observatory at Zi-ka-wei, a village in the vicinity of Shanghai; but other more strictly geographical results have been obtained from their labours. The chart of the Yang-tse, in sixty-four sheets, based on the surveys of Père Crevalier, has already been referred to in the *Journal* (vol. xiv, p. 316; xv, p. 678). The determination of positions by Père Chevalier rests on no fewer than 800 astronomical observations, carried out at 48 separate stations. Maps of parts of Ngan-hwei and Pe-chi-li have also been prepared from the material collected between 1870 and 1890 by the late Père Pfister, but they have not yet been issued to the public. Various memoirs of geographical interest have been published in the collection, entitled *Variétés sinologiques*, including a historical and geographical study of the province of Ngan-hwei, by Père Havret, who has also compiled a map of the province. Another memoir deserving mention is that, of Père Gandar, entitled *Le Canal Impérial*, which shows, by the help of maps, the state of the canal under the different dynasties and at the present day. Altogether the work of the fathers seems a worthy continuation of that of their predecessors in the eighteenth century.

THE ROOF OF THE WORLD: JOURNEYS IN CENTRAL ASIA.

By CAPTAIN H. H. P. DEASY.

[Addressed to the Society, in the Memorial Hall, Wednesday, November 14th,
1900, at 7-30 p.m.]

FOR many years the desire to explore unknown lands had been very great with me. The large extent of unexplored and little known country in the region of Tibet had acted upon me as a magnet does on a piece of iron. It is this country and the enormous tracts of land known as the Pamirs which may be called the roof of the world. The quickest way of approaching the Pamirs is overland by Russia, but circumstances obliged me to take the more devious route *via* the Red Sea and India.

From Bombay in April, 1896, the train conveyed me to within 200 miles of the Valley of Kashmir. On my first journey I started from Srinagar, the capital of Kashmir, and travelled to Leh, the capital of Ladak, where I made the official preparations. We moved eastward, crossing the frontier by the Zoji La pass over the western Himalayas, which were still deep in snow, a fact which considerably retarded our progress. We then moved north-eastward to Yeshil Kul, better known to me as "Fever Camp"; then east a little further until we found a waterless and barren country, and were obliged to return south. At this point we were relieved of our best animals by professional robbers, and were forced to return to Leh and back to Srinagar. The difficulties had not seemed so formidable as they really were, but as soon as preparations were begun at Srinagar it was evident that they were formidable indeed. There was the necessity of carrying food for all the men of the caravan as well as for the animals; want of grass and water kept us very anxious, and above all we had to face the contingency of our men deserting us with food and animals. Nevertheless we left Srinagar again for the Pamirs, *via* Gilgit and Hunza on September 14, 1897, in the highest spirits.

We must travel to Asia to find the most lofty plateau in the world known as Tibet. To the west of it we find the giant Muz Tagh Ata, 24,400ft., and not far distant rises the snow-topped summit of Mount Kungur. Eastward is the lofty Kwen Lun range, in the western portion of which mountains are common. Not only are the mountains of great altitude but the valleys also are considerably above the sea level. In one of these valleys I

was destined to spend several months, above the average level of the clouds which hang over our island. In the clear and dry atmosphere of Tibet it is very hard to judge distances with any pretension to accuracy. Objects which appear only a few miles away are in reality eight or twelve miles distant.

My party consisted of a sub-surveyor, an orderly—both of whom were kindly lent to me by the Indian Government—a cook, a native collector, and six Argoons, headed by Abdul Khalik, who proved to be one of the greatest scoundrels and robbers in Central Asia. I experienced some difficulty in obtaining suitable animals. However, I was able to hire some ponies to go as far as the frontier, and had in addition twelve mules in charge of four Pathans, who met me at Gilgit. These Pathans stuck to me for six months, and proved faithful and hard-working fellows, so that it was with the greatest regret I parted from them.

My caravan bashi, Abdul Khalik, gave me a great deal of trouble, and at Gilgit I had him arrested, where he was sentenced to a year's imprisonment for robbing me. On the road from Srinagar my orderly, Abdul Karim, in answer to my query as to his opinion of the caravan bashi, said: "Sahib, he is a bad man and a robber; kill him and then there will not be any more trouble." As I did not at once agree to this he added: "If you do not like to kill him give me the order and I will do so at once, then all the trouble will be over." My refusal to allow him to do this considerably damped his spirits.

The natives of Ladak, who are the only persons who can work in the rarified air of this country, dread going into Tibet with Europeans, fearing the hostility of the native officials, and nothing will induce these men to fight for their European masters however well they may have been treated.

The sub-surveyor, known as Ram Singh, proved to be a competent and energetic man, to whom a large share of credit is due for his services in bringing the journey to a successful issue. Of the sixty-six mules and ponies which composed the caravan when it left Leh in May only six survived to reach Lutkoum in November, and they were only just able to crawl along unladen. Sheep proved to be the best transport animals, most of them being able to carry about twenty pounds.

After a few days' stay at Gilgit we continued our journey in hopes of reaching the Taghdumbash Pamir before any heavy fall of snow rendered the passes too difficult. On October 22nd I commenced work in the west end of the Taghdumbash Pamir. A biting wind added considerably to our difficulties, and my hands were frost bitten at the highest hill station, which is about 16,000ft. It was very fortunate that several yaks were obtained to carry our baggage. The instruments were carried up the steep mountain side on one of these hardy and sure-footed

animals, and two more conveyed the sub-surveyor and myself until the gradient became so steep that we were obliged to dismount, and found it preferable to crawl up, hanging on to the animals' tails.

The peculiar custom of women having more than one husband is common in Tibet.

The descent from the top of the Ilisu Pass towards the Yarkand River is fairly gradual—a contrast to the steep and rugged ascent from the north. The route lay along the bottom of the valley of the Tolde Kol Su, which was frozen hard in the upper parts of its course, and we had frequently to use our pickaxes to roughen the ice and improve the track where it was impracticable to closely follow the river. One of our sorely felt wants was the need of fuel. Many times the only fuel available was partially dried yak dung.

During the summer months it is said to be impossible to bring any animals along this path, owing to the great quantity of melted snow. Close to the Kilik Pass, which is one of the entrances to the roof of the world from Hunza, the gradient becomes much more gradual.

It was now the end of October. The high mountains were covered with snow, and the cold was so severe that my fingers were frost bitten when taking observations. Bearing in mind my motto that difficulties exist for the purpose of being overcome, I paid no attention to the reports of the natives, who assured me that the road to the Yarkand River was quite impracticable owing to earthquakes. I was inclined to attribute these difficulties to the stay-at-home propensities of the Tajiks, but I afterwards ascertained that strict orders had been sent from Kashgar to the Amban of Tashkurghan that no attention was to be paid to the public orders issued on my behalf, and that they were to do their best to prevent me going up the Yarkand River. These people (the Tajiks) are compelled to live mainly on milk and its products; flour and rice are looked upon as great luxuries, and judging from the appearance of the men they seem to thrive on their monotonous diet. To call them anything but liars is to make a serious allegation against their character, as I was informed "Tajiks always tell lies"—a statement I can entirely corroborate. It was these men who tried to dissuade me from trying to reach Raskam.

Lower down in this valley dense jungle added to the difficulties of the route, very high, barren mountains rose on either side, and the path was often only a few yards in width. The baggage animals were much impeded, and one of the ponies lost an eye through this cause. The winding nature of the river also considerably increased our difficulties. It will give you some idea of the exceedingly precipitous nature of the mountains in this valley when I tell you that it took us ten days and a half to

travel a distance of twelve miles. For a great portion of the way necessary to haul the baggage animals up the steep mountain sides.

After a day's rest at Zad we resumed our journey, and I decided to spend a night near the summit of the Kukalung Pass at an altitude of about 16,000ft. Bad as the ascent was the descent was even worse, the gradient being steeper and the shale more slippery. We bivouacked here near a frozen river for a couple of nights, and it was here that my faithful companion, my rough-coated mongrel, was found frozen to death. About twelve miles away gold, iron, coal, and copper exist, but the natives are so deficient in enterprise that they only seek the former, and that only to a limited extent.

We reached Yarkand on January 20th, and left again on February 8th, and followed the course of the Yarkand River as far as Taklay, ascending the Chiung Sai valley, and thence to Langar across the Arpatalak Pass. However, we were compelled to return to Yarkand, the route being now quite impossible to travel through.

On April 12th I again set out from Yarkand for Guma, where I had to wait until the camels arrived from Kharghalik.

No allusion to Chinese Turkestan is complete without mentioning the Takla Makan Desert, where many cities are supposed to lie buried beneath the sands. I engaged a man who professed to be intimately acquainted with many of these half-buried cities. He agreed to guide me to several which I afterwards found to exist only in his imagination. As the agreement I made depended on the results of the expedition I am at a loss to understand his motive in thus deceiving me. This man, Islam Akum, was rewarded for his share in the transaction by the Amban of Khotan, who sentenced him to wear a large and heavy board, weighing about 30lbs., round his neck for a month. The other men who professed to lead me to the nearest of these buried cities—Ak Tala Tuz—I punished myself.

There are many things in this part of the world which strike a traveller as strange—want of sanitation, absence of the post, and the bad water supply. In large towns the only running water is sometimes outside the walls, and men earn paltry sums by bringing it to the houses. Among other reforms sadly needed is proper punishment; I once thought of substituting the word "justice." Murderers are occasionally decapitated, but many escape this sentence. In some instances irons are employed, and heavy bars weighing about 42lbs. are attached to these by chains, sometimes for life.

After checking the longitude at Khotan I went to Polu *viâ* Chaka, but being unable to obtain any help there proceeded to Kiria, where for some unknown reason the people had been ordered not to assist me.

One peculiar feature of the Roof of the World is the huge scale of nature which makes distant objects appear ever so much nearer than they really are. At Fever Camp I could see mountains nearly one hundred miles distant.

People living in civilised countries cannot estimate at its true value the blessing of good water. In this respect I am a true nomad—my thoughts continually turn to water, fuel, and food, and, strange to say, I never suffered any inconvenience even at an altitude of 19,000ft.

At one of the worst parts of the road through the Polu Gorge the animals were assisted up the steep mountain sides by the men who held on to their tails to prevent them turning somersaults.

As regards the geographical work accomplished it may be of interest to state that the area of the country surveyed was about 40,700 square miles, equal to about $1\frac{1}{2}$ the size of Ireland. The heights of 250 mountains were determined, the true sources of the Khotan River discovered, and the longitude of many places accurately ascertained.

In my opinion the outlook for an increase of trade between India and Chinese Turkestan is far from favourable, owing to the natural difficulties of the roads between the two countries; and as regards Tibet I would suggest that diplomatic means should be employed to win the friendship of that country before it is hugged too closely by Russia.

The Boundary between Columbia and Costa Rica.—The award of the President of the French Republic, acting as arbitrator in the boundary dispute between Columbia and Costa Rica, was made public on September 15th last. The boundary will in future run as follows: Starting from Cape Mona, on the Atlantic ocean, it will first follow the spur of the Cordillera, enclosing the valley of the Tarire on the north, and afterwards the continental water-parting up to 9 deg. N. It will then follow the water-parting between the Chiriqui Viejo and the feeders of the Golfo Dulce (Pacific ocean), terminating on this side at Point Burica. The islands near the coast to the east and South-east of Cape Mona are assigned to Columbia, those to the west and north-west to Costa Rica. All the more distant islands between the Mosquito coast and the isthmus of Panama, viz., Mangle Chico, Mangle Grande, Cayos de Albuquerque, San Andres, Santa Catalina, Providencia, and Esculo de Veragua, and all that formed part of the old province of Cartagena (the canton of San Andres), will belong to Colombia. On the Pacific side, the Burica islands and all to the east of Point Burica are assigned to Colombia; those to the west of the same point to Costa Rica. By this decision a considerable area usually assigned to Costa Rica on our maps now goes to Colombia, and at the same time forms part of South, instead of North, America.

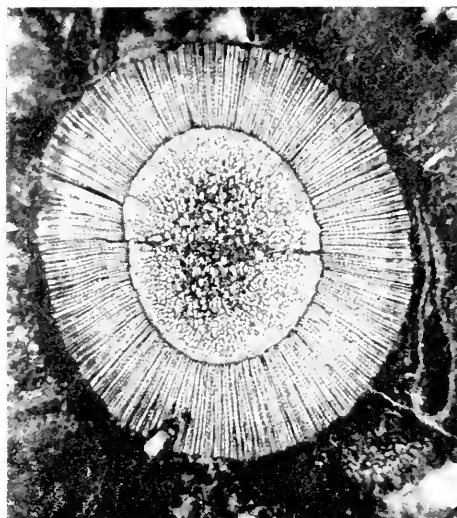
THE FLORA OF THE CARBONIFEROUS ROCKS.

(*With Illustrations.*)

By W. W. MIDGLEY, F.R.Met.S.

THE above subject formed the title of a lecture delivered before the members in the Society's Library, on Tuesday evening, October 16th, 1900.

At the outset Mr. Midgley referred to the eternity of time which must have elapsed since the plants he had to speak of lived, in order to account for the vast accumulation of sedimentary deposits which have



A.—LEPIDODENDRON SELAGINOIDES $\times 10$.

been laid down since the carboniferous formation. In speaking of the physical conditions which prevailed then, he summarised two theories which have been put forward to explain the manner in which the coal seams were deposited: (A) The "drift" theory, which supposes that coal is but an accumulation of vegetable matter, drifted by the agency of water to the place where we now find it. Few such seams as could be referred to this explanation occurred in the United Kingdom. Some of the Scotch seams, and very good evidence of the seams in Kilkenny had recently been brought to his notice by Mr. J. Gerrard, H.M. Inspector of Mines, where the presence of fishes embedded in the coal plainly indicate that it had been laid down under water,

and the vegetation must have been carried from the land. (B) The "*in situ*" theory also states that coal is the product of vegetation, but that the plants grew upon the spot where they are now found. The land in those times was undergoing gradual and prolonged sinking, with intermittent pauses, each pause being of sufficient duration to allow of the growth of vast forests of vegetation. These forests grew along the margin of wide estuaries, or near to shallow lakes or seas, under which they afterwards became buried by encroachments of the sea during periods of subsidence. When the forests had become totally submerged, estuarine deposits were thrown down upon them,



B.L.S.—LEPIDODENDRON SELAGINOIDES $\times 70$.

together with the organisms which lived in those waters. Gradually the shallow sea once more silted up, and permitted a fresh mass of vegetation to establish itself, and form another mass of humus during a period of rest in the sinking. This in time disappeared again under water by subsequent depression, and a new set of estuarine deposits would be laid upon it. By such a series of intermittent rests and subsidences of the land surface it is easy to account for the coal seams, alternating as they do with deposits peculiar to brackish, fresh, or salt water; and, further, that the relative duration of these periods of rest may be approximately inferred from the difference in the thickness of the individual seams.

Referring to the climatology of the period, everything indicated that the temperature was much higher, and the humidity of the atmosphere greater than in recent time: and also there must have been a greater proportion of carbon-dioxide. The flora was of the flowerless plants—ferns, lycopodiums, equisetums, etc., the calamites attaining



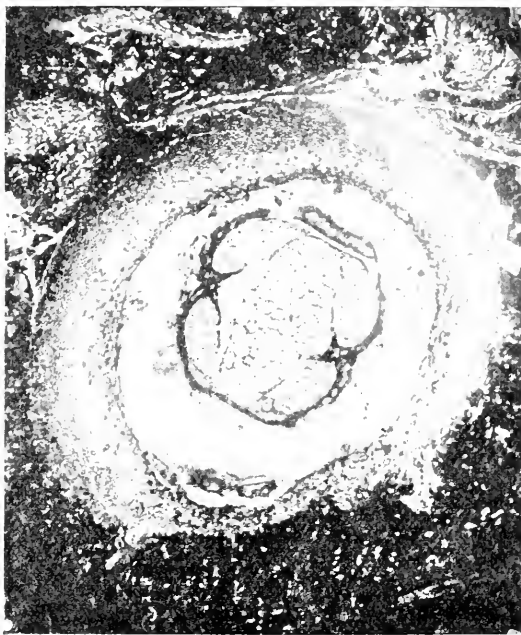
C.—SECTION OF CALCAREOUS NODULE. NAT. SIZE.

a height of 20 feet to 25 feet, and the lepidodendrons and sigillarians 40 feet or 50 feet. These plants are now known to us by their remains having become encrusted by the soft shale, and leaving casts of the leaf-sears on the bark of lycopodiums, the nodes and striæ on the calamites, and the venation of the fronds of ferns. By far the most

important state of our knowledge of the flora is derived from stems, fruits, etc., preserved in the calcareous nodules; where, by the infiltration of this or other preserving mediums, the minutest tissues of the organisation of the plants have come down to us as perfect almost as recent forms.

By means of a series of forty lantern slides he proceeded to project on the screen examples of the principal types of coal plants from photomicrographs of sections in his collection, from which we reproduce a few copies.

A.—A transverse section of a small stem of the *Lepidodendron selaginoides* $\times 10$ diameters, in which every cell, from



D.T.S.—RACHIOPTERIS LACCATTI $\times 40$.

the pith to the bark, is preserved, showing the affinity of these plants to the lycopodiums, or club mosses, of our own time, a section of which he showed.

- B.—A longitudinal section of the same plant, $\times 70$ diameters, in which the scalariform cells, peculiar to all the vascular cryptogams, come out quite as crisp as in any recent fern.
- C.—Section of a calcareous nodule, cut for Professor Scott by Mr. James Lomax, showing several stems of *Lyginodendron Oldhami* in situ. This photograph is natural size.
- D.—A transverse section of a fern stem, *Rachiopteris Laccatti*, $\times 40$ diameters, showing the arrangement of the vascular tissue.

It would be of such a fossil the anonymous American poet wrote—

There came a thoughtful man
Searching Nature's secrets, far and deep ;
From a fissure in a rocky steep
He withdrew a stone, o'er which there ran
Fairy pencillings, a quaint design.
Veinage, leafage, clear and fine,
And the fern's life lay in every line.
So I think God hides some souls away,
Sweetly to surprise us the last day !

In studies such as these, with the hieroglyphs of the organic rocks as the alphabet, we are able to read nature's language, and spell out, by the carefully preserved plants and animals, much of the earth's history from its flora and fauna. On all hands we are beset with proof of the axiom that "there is no such thing as loss in nature." Change we see always going on, but nothing is ever lost. Rather such researches show that there is always a process of circulation going on, whereby matter is made to give back that which it has kept stored up in itself for many, many ages, having first absorbed it from something outside itself. For instance, the vegetation of the coal period absorbed into itself the light and heat of the sun, and kept these stored up for millions of years deep down in the earth. In our own time the miner brings to the surface these products of the primeval forests, and the gas manufacturer separates the light so long stored away and delivers it in our houses or streets. Nor is this all—the chemist, out of the very refuse of the gasworks, has been able to regain those very *colours* which gave variety and beauty to a vegetation which flourished in the jungles at the time the coal was deposited. In the beautiful *aniline dyes* we are bringing into view and into use those lovely tints which conferred a glory and beauty on these old forests, and which, after being treasured in the earth all this time, now contribute to the pleasure and convenience of man.

NEW BOOK.

"A SHORT ACCOUNT OF THE LEACH BERMEJO EXPEDITION OF 1899, WITH SOME REFERENCE TO THE FLORA, FAUNA, AND INDIAN TRIBES OF THE CHACO." By A. A. G. DOBSON. 74 pp. Several illustrations. No index. J. Smart. Buenos Aires, 1900.

This is the venturesome voyage of a trader to ascertain for himself the condition of the rivers Pilcomayo, Bermejo, and the Tenco for navigable purposes, and the condition, wants, and products of the supposed wild and savage tribes on the banks and in the neighbourhood of the rivers.

The travel was not without danger and some loss.

The story is told in simple, direct language, and supplies a great amount of interesting and valuable information on a little known, but evidently a naturally very rich part of South America.

SOME REMARKS UPON THE CRISIS IN CHINA.

BY THE REVEREND FREDERIC GALPIN (for many years stationed
at Ningpo).

[Addressed to the Society in the Library, Wednesday, December 5th, 1900.]

THE daring attempt on the part of the Government of China to clear the empire of all foreigners by a general massacre, is but an outward and visible sign of the inward and official attitude of the majority of the ruling classes.

For the past fifty years the one dream and the sole ambition of the literati has been to rid themselves of the pest of the foreign invasion. Hence the wholesale orders given for arms and ammunition, and the indifference shown in regard to railroads, education, and all progressive movements.

The ambassadors, ministers, and some of the consuls may have thought that all the rumbling threats simply pointed to a strong anti-missionary feeling; but it is to be hoped that they have now been sufficiently enlightened to know that the ambassadors are as much the object of contemptuous and scornful hatred as the too-much-despised missionary.

It is notorious that the Chinese have not cultivated a discriminating knowledge of the aliens, who are all regarded as uninvited guests, to be bowed out or forcibly ejected at the earliest opportunity.

Even the rulers of other nations are only viewed as the heads of inferior states, or little kingdoms; consequently their representatives are treated with the cold shoulder as often as possible.

The Chinese official explanation of their sullen attitude, is that foreign nations have, by their wars and invasions, humiliated the dynasty and brought disaster to the empire.

The war of 1841-2, when a comparatively small British force easily conquered the Chinese troops, reducing the Government to a position of shame and dishonour in the eyes of the people, at once breaking the spell of supposed Divine right by which the dynasty held the throne, and revealing the weakness of officialdom to the many secret societies who had hitherto been kept in a state of inaction simply because of a fear of defeat.

The opium war opened the eyes of the discontented leaders of the secret societies, and then followed the tragic Tae-ping rebellion, with its long train of horrors and brutal actions.

The already discredited Government was now seen to be completely rotten and helpless, and would have been swept away in a sea of blood but for the intervention of foreigners.

It is easy for us to say that the officials of China ought to show some sense of gratitude to their deliverers; but only a little reflection

is necessary to convince us that usually neither the old or new diplomacy find it convenient to retain very much gratitude in their policy.

The subsequent wars with foreign powers, all ending in defeat to Chinese arms, and a long chapter of disasters that have followed, including even the floods and famines, and also including loss of territory, have tended to incite the officials and Government to a condition of desperation bordering on madness—hence the tragic crisis of last summer.

But who is responsible for the crisis—the massacres and the looting? Let us not be as indiscriminate and rash in our judgment as the ignorant and blind Chinese officials, and wire-pullers and cunning intriguers of the many secret societies.

The Chinese people may be divided into three classes: First, the brain class; second, the muscle class; third, the riff-raff or lower orders.

First, the brain class of the Chinese. These are the professional scholars, the literati, the possessors of, or candidates for, office in the Government. Another name for them is the Confucianists—*i.e.*, the recognised orthodox disciples and followers of the great sage whose name they are proud to bear. If truthfulness and candour are within the scope of charity, then it is certainly not uncharitable to say that the name they bear is the greatest quality they possess to call for our respect. As scholars, as men of narrow culture, and correct deportment and elegant speech they are almost perfect to a fault. But as officials they seem smitten through and through with the dry-rot of corruption. They are avaricious, unjust, and they hate reform. There are a few famous exceptions, but only a few.

There are also a number of younger men, who have come under the influence of the new knowledge from the West, some of them of great ability and influence, and even the ill-fated Emperor is amongst this number. But the fact that he was deposed because of his approval of the reform movement shows clearly the attitude of the majority of the ruling classes.

The brain power of China has been bitterly opposed to the new knowledge, and contemptuously hostile to all foreigners; not only to missionaries, but to promoters of railroads and to agents in mining concessions. This is unspeakably unfortunate for China; it means calamity and disaster. It is the judicial madness or blindness which is ominous of destruction.

This class are in the main largely responsible for the present situation. They have, by means of secret literature, endeavoured to incite the unlearned people in China to rise up and destroy the strangers within their towns and cities. Foreigners have been charged by them with deeds of horror that merit death by torture and violence; and the charges have never been honestly or heartily contradicted by the ruling classes. This class is largely responsible for the brutal outrages of the past.

Second, the muscle of China. By this term I mean the working classes and their masters. Much has been written concerning the praiseworthy industry of the Chinese people. Of the industrial class I have nothing but praise to speak. They have no share in the present upset, except that many of them must have had to suffer a heavy share

in the consequences that have followed since the foreign troops have come into contact with the "Boxers."

The muscle power of China has little to do with the Government, beyond paying taxes and submitting to unjust squeezes, in order to be allowed freedom to earn their rice by hard toil. They have been trained to do their work, mind their own business, and not meddle with politics; and they usually do as they are told. These masses of toilers are most easily governed; they accept their lot in life with great patience, and only rise up to resist the official classes when they feel the burden to be intolerable.

The farmers and wood-cutters, fishermen and sailors, builders and quarrymen, carpenters and cabinet-makers, tailors and weavers, blacksmiths and brass-workers, with the host of barbers, porters, and sedan-chair bearers, give little trouble to the Government, and are not in any way responsible for the present crisis.

Then there are the masses of traders, from the jeweller and silk merchant down to the pedlar and hawker—a numberless multitude, who have no strong feeling against the foreigners, except it be concerning questions of competition in trade. It is to the interest of these dealers and merchants to seek for peace; consequently they have no desire to upset the country by riot, and they have no quarrel with the foreigner.

The muscle power of China probably contains seven-tenths of the male population, and unless forced to take sides they have been neutral in the recent crisis.

Perhaps, in passing, I may be allowed a slight digression, when I add that many of this class would gladly welcome the reform movement, as it would give them a larger commercial prosperity; and, indeed, from the muscle of China most of the Christian converts have been received.

Third, the riff-raff. This strange and motley class, a heterogeneous mass, the scum and refuse of all sorts and conditions of men, are a far more important element in Chinese life than many suspect. They are bound by one common object, to stir up strife, fan the flames of riot, and then to share in the spoil and loot.

There are moral grades in a heathen city, notwithstanding our common habit of lumping them into one mass, and labelling them all as "heathen."

The lapsed masses of a Chinese city are a far more serious and powerful factor in life than are the similar orders, say, in London. They are also more numerous, and more dangerous and injurious.

The most refined of the riff-raff are nicknamed by the Chinese as "The Order of Ragged Boots."

Satin boots are usually worn by the official class, who consider it "bad form" to appear in shoes, and to walk; they must be carried in sedan chairs, by ill-clad and ill-paid chair bearers. But many fall from the first rank because they are degraded on account of special misconduct, and because they had no money to cover up their misdeeds.

These discontented and disappointed creatures, condemned to live by swindling, gambling, or lying, find a refuge in the secret society, and although they profess to aim at reform, they live by acting as lawyers to incite the people to litigation, and to provide for themselves.

Some of the less dangerous of these become priests, or fortune tellers, or diviners, and occasional gamblers, and they take the lead in clan feuds, or local riots, and have had a large share in putting into practice the threats to kill foreigners. But their share has been in simple leadership, for there are other "lewd fellows of the baser sort" who do the rough work, and are called by the Chinese—"Idle or empty-handed eaters of rice."

These are a class of bullies and rowdies, who, by acts of violence, and threats, and rough handling, contrive to make a living without toil or labour. These miscreants may be called the "apostles of paraffin oil and cotton wool," with which they set on fire shops and dwelling-houses in the dark and still hours of midnight, and then they loot the neighbouring houses, on the ground that any one had better take the property rather than leave it to be destroyed by the hungry flames of fire. Such men are almost as cruel as the terrible fire itself, and such bands are to be found in every Chinese city. Sometimes these ruffians herd together under one common leader, and are able to rob and loot the wealthy at their own desire. Verily, a London mob is a company of innocents compared to these gangs.

Well, these are the men who rob and loot mission stations, and cruelly torture and assault women and children.

During the recent crisis the ruffians not only received a "free hand," but the native soldiers—not much superior at any time—gladly co-operated with the professional riff-raff in their work of plunder and mischief.

Are the missionaries to blame for the crisis? Many writers have not hesitated to lay all the blame upon the missionaries, and they have done so with a large measure of certainty in their tone. But these critics are only poorly fitted to give judgment upon such a large and complicated subject. Perhaps some of these writers draw their conclusions from the fact that the missionaries have suffered most seriously and severely. But then we must remember that the missionaries who have suffered were living in isolated stations far away from treaty ports or consular residences or mercantile communities.

Many of the missionaries have gone where the merchants never go, and where there is no consul to intervene or gunboat to protect. If British merchants had lived in the province of Shan-si there can be no doubt that they would have shared in the treacherous and horrible death which has befallen the ill-fated missionaries. No merchants were killed, simply because none were there to be killed. In the case of Peking, or Tientsin, every foreigner was in danger.

To answer the question of the missionaries' share in the cause of the trouble, I must ask and answer another question. Are the officials of China more in earnest about religion than they are about the reform movement and the threatened loss of power?

We must remember that the Chinese Government cannot rid itself of out-of-date and useless officials by putting their names on the pension list. The Chinese do not pay any pensions. I believe that personal interest, dislike of change, and hatred of all foreigners, are the chief causes of the present crisis.

If the question is asked, Which class of foreigners are hated the most? I should say certainly not the merchant, because he simply

brings his goods for sale or barter. He will not be regarded as the most dangerous visitor.

Most likely the man with the modern books, the apostle of the new knowledge, will be regarded as the most dangerous innovator. The missionary will have to bear a large share of this, and he is willing and able to bear it.

Then there is the "odium theologicum" element. Religious bigotry can better exist amongst heathen people than amongst Christian nations. This religious bigotry may in some measure account for the hostility of the literati. But the industrial classes are more liberal, and are more disposed to judge of the religion by its fruits.

I have endeavoured to explain the present crisis, and I must leave my remarks to your judgment.

[The lecturer then made some general remarks upon a number of slides that were exhibited, referring to the district of Ningpo in Eastern China.] This is one of the most fertile places in China; the mulberry tree supplying food for the silkworm, and consequently an abundance of silk, with cotton, tea, indigo, and hemp; also very much rice, wheat, tobacco, and opium. The district is also famous for its scenery, and the freedom from the usual strong anti-foreign feeling. No riot has occurred here during the recent crisis.

NEW BOOK.

"THE ATLAS OF METEOROLOGY." "BARTHOLOMEW'S PHYSICAL ATLAS," VOL. III. By MESSRS. J. G. BARTHOLOMEW, F.R.S.E., and A. J. HERBERTSON, P.L.D. Edited by A. BUCHAN, LL.D., F.R.S. Four hundred Maps, Introduction, Descriptions, Tables, Glossary, and Index. Published by A. Constable and Co. Westminster, 1899.

THIS is a clear and graphic portrayal of meteorological phenomena, by means of a series of about 400 maps and charts, illustrating climatology and weather. The climatic series show the monthly and annual distribution of pressure, temperature, winds, cloud, sunshine, and rainfall all over the world where meteorological stations exist. The weather maps and storm charts indicate meteorological differences over definite regions at given periods, representing the most characteristic types of weather. In all the maps both the metric and English systems are used. By using the same gradation of contour colours throughout to indicate the various phenomena, the areas of variation can be most readily detected.

At the present time the network of observing stations is too incomplete to embrace the whole world. Little is known of the meteorology of the polar or sub-polar regions of Canada in the Western hemisphere, or of Siberia in the Eastern; of the tropical and sub-tropical areas of South America, Africa, China, and South-Western Asia. But from the data available the authors have succeeded in rendering valuable service, alike to meteorology and geography, by collaborating and illustrating the extent of our knowledge on the subject of climate and weather at the close of the century.

The individual maps are ably and fully discussed in the letterpress.

There is appended a useful glossary of technical terms, and also a bibliography of the more important books and papers of special value to those who wish to extend their knowledge in special directions—amongst which we observe the important contribution on "Ocean Rainfall" made to this Society by Surg.-Major W. G. Black, F.R.Met.S., &c., of Edinburgh, which appeared in the "Journal" of the Manchester Geographical Society for 1898.

To those practically engaged in meteorology it is a welcome volume, enabling us to find approximately the information required without having to ponder through piles of official meteorological returns.

IMPRESSIONS OF A VOYAGE TO CHINA AND JAPAN.

By MR. F. HOYLE, M.B., Ch.B. (Vic.).

[Addressed to the Society at Raynor Croft, Saturday,
June 16th, 1900, at 5 p.m.]

I HAVE been requested to give you a short summary of my experiences in the East. Owing to my position as ship's surgeon, the journey was somewhat hurried, and my impressions are, of course, superficial, but I will to describe to you briefly the various peoples and districts as they appeared to me.

Leaving Liverpool early in the morning of November 3rd, 1899, we made our way first to Port Said, arriving there twelve days later. Port Said contains a curious combination of ancient and modern life. On the one hand, there are Arabs, with their donkeys, camels, and water skins, apparently little changed from the days of the patriarchs, and within a few yards of this is the café chantant, with all the gaiety of modern Paris on a smaller scale.

As soon as the ship is made fast the deck is filled with the various dealers, who wish to sell you cigarettes, Maltese lace, mosaic work, sun hats, Turkish delight, fruit, or if they have not the particular thing you desire, they will go ashore and get it. One feature the shopkeepers and itinerant vendors have in common with the Chinese, Javanese, and to a less extent the Japanese, is the constant attempt to over-reach the European. Thus, if they state a price for a certain article it is sure to be exorbitant. Offer the man a third of what he asks, and he will at first treat it as a joke, and laugh at you, protesting meanwhile that it would be ruining him and would be selling the article at a long way below cost price. If, however, you are firm and walk away, he will follow you, gradually reducing his price until he reaches your terms, and then you have the satisfaction of getting the article at your own price and of knowing that the man has still made a considerable profit out of you.

The so-called Arab town at Port Said can be seen in about a couple of hours, and gives a fair idea of the Arabs in Egypt, with its flat-roofed houses and the mosques. The stalls, with various kinds of merchandise, are the shops of the village.

The upper classes are becoming more and more Europeanised, although they all retain the fez.

After a day and a night in Port Said, we entered the Suez Canal, passing the Khedive of Egypt, who was on his way to unveil the statue of De Lesseps, which is a striking feature on the breakwater at the entrance to Port Said harbour. The traffic on the Canal is enormous, the majority of the vessels being British. Ships are only allowed to proceed at the rate of five miles an hour, and when two ships pass each other, one of them must stop and tie up to the bank. The time taken in transit is 16 to 18 hours, which, however, is less than it used to be, owing to the introduction of the electric light and to the fact that every large vessel carries a powerful search light, thus doing away with the necessity of stopping at night time. The monotony of the passage through the Canal is relieved by the entry into the Bitter Lakes, by the change of pilot at Ismalia, and the occasional glimpse of wandering caravans crossing the desert on either side.

Leaving Suez, where I did not get ashore, we passed through the Gulf of Suez and the Red Sea, catching a glimpse of the majestic Mount Sinai;

then past the Island of Perim, with its signalling station, through the Straits of Bab-el-Mandeb, into the Gulf of Aden; and, losing sight of the African coast at Cape Guardafui, we entered the Indian Ocean on our way to Singapore. The rather tedious sail across the Indian Ocean is broken by a good view of the island of Ceylon, the spices of which can be scented before the island itself appears. The next land we saw was the coast of Sumatra, and then we passed through the Straits of Malacca, reaching Singapore 18 days after leaving Suez. Entering Singapore harbour, which is filled with ships of all nationalities, we notice first of all the Malays in their frail dug-out canoes, paddling along and baling the water out of the canoe with a sweep of the foot. These men paddle round the new ships coming in, and show their agility by diving for any small coin thrown into the water for them. The boats here show signs of native superstition, in the two eyes painted on the bow of the boat to avoid collision! It is useless trying to point out the absurdity of this, as the only reply you get is to the effect that if the boat has no eyes it cannot see its way, and consequently disaster follows.

Reaching the wharf, we were struck by the conglomeration of nationalities, including Europeans, Japanese, Javanese, Chinese, Siamese, Malays, Burmese, Cingalese, Tamils, Sikhs, Parsees, and Lascars.

The town of Singapore, which is situated about $1\frac{1}{2}$ miles from the wharf, is reached by means of the ricksha of the East, or by taking a gharry. The gharry is a square, four-wheeled conveyance, something like a small English cab, but with the roof raised about four inches from the sides to allow circulation of air, and with Venetian blinds instead of windows. This carriage is drawn by a tiny pony, driven usually by a Malay. I spent a week in Singapore, and meeting an old friend, we saw together some of the surrounding country, and paid a visit to the beautiful botanical gardens, with their lovely palms, blossoms, and orchids, one of the features of the place. There is a small but interesting zoological collection in one part of the gardens. One of the striking pictures of Singapore is the bullock driver, with his two oxen yoked to a rude cart, which conveys the goods from the ships to the different parts of the town. The chief natives of Singapore are the Chinese. There are numerous other nationalities, but the majority of these do not seem to rise any higher than to act as ordinary labourers, boatmen, or coachmen. The Chinese, on the other hand, reach much higher positions, and some are indeed very wealthy. In spite of their long residence away from their native land they still adhere to the manners and customs of their ancestors. They are, however, proud to be called British subjects, and never fail to remind you of the fact. The practice of crushing the girls' feet, which is still carried on in China, is lost at Singapore. The regular way in which the Chinese people send money to their poorer relations in China is interesting, and is regarded as a sacred duty.

Owing to this preponderance of the Chinese element, the streets of Singapore very much resemble those of China, with their shops and numerous gaily-painted signboards hung out on rods over the roadway.

The sun rises and sets here at about six o'clock all the year round; cyclists, therefore, would not be able to feign ignorance of the lighting-up time.

The importance of Singapore as a British possession can hardly be over-estimated, situated as it is on the main route from the Indian Ocean to the now important countries of China and Japan.

When we were there the English regiment which had been stationed at Singapore had just been sent off to South Africa, and their place was to be taken by a native regiment from India. The English residents, apparently thinking it unwise to have no fellow-countrymen to defend them, were forming a volunteer corps among themselves, and at that time were quickly being initiated into the mysteries of drill and rifle practice. From Singapore we carried two dead bodies round the coast to their last resting-place in China. The ceremony of embarkation was somewhat interesting. While the coffin was being hoisted on board, a paid mourner stood in front of it, holding aloft a stick, to which was attached a small piece of white linen. He also burnt incense and chanted in a mournful tone. Thanks to the interpretation of our Chinese chief steward, I was able to understand this

chant, which was a recital to the deceased of all that was taking place, thus: "You are now being taken on a large ship, and are now being placed in a beautiful and gorgeously decorated room," etc. Seeing that he was being lowered into the hold with the remainder of the cargo, this description seemed to me to be somewhat inaccurate. During the passage, the relatives threw paper money overboard every day, to appease any stray spirits or gods who might be about.

Hong-Kong, our next calling-place, was reached six days after leaving Singapore. The name means in Chinese "Fragrant Waters," and it is apparently so called because of the numerous mountain streams in the island. "Hong-Kong" is the name of the island, the town itself being called "Victoria." The harbour presents a busy appearance, with the men-of-war, numerous steamers, Chinese junks, and sampans; the last named being small rowing boats propelled mostly by women, and by means of which you get ashore from your ship, which is lying out at anchor. These sampans form the sole dwelling-place of their owners, and it is no uncommon sight to see grandmother, father, mother, children, and a few cocks and hens all living together in one of these frail boats, the longest of which is only about 12 or 14 feet long. The main thoroughfares of the town are somewhat like those of an English village, and when you see the names of the streets, such as Queen's Road, Stanley Street, or Robinson Road, you might almost imagine yourself at home again were it not for the numerous rickshas and coolies. Off the main roads, however, are the more typical Chinese streets, as narrow and as dirty as they dare make them without being called to order by the governing powers, and with the ubiquitous signboard in evidence as usual. Queen's Road is the main road, and contains the principal shops and the largest hotel, the Hong-Kong Hotel, which is one of the finest in the district. Hong-Kong also has its public gardens, beautifully laid out, though not on quite as large a scale as those at Singapore. The principal hill, called the "Peak," may be ascended by means of a wire-rope tramway, and from the summit a lovely view is obtained. It is to the Peak that Europeans fly in the summer to get out of the heat and possible plague of the low-lying districts; house rent is therefore high.

The English residents are by no means cut off from civilisation, as there are English schools and churches, a fine cricket ground, and a racecourse for those who are of a sporting turn of mind.

I see by your list of arrangements for June that you are to have a paper on "Hong-Kong" on June 30th, so I will leave any further description of this interesting place to Mrs. Unsworth, who will be able to tell you more about it than I can.

We next made our way to Shanghai, which is a little more typical of China. There are a few English shops in the town, but there is really not much to describe about Shanghai. The chief feature of interest is the so-called China City, which is an example of pure, unadulterated Chinese life.

Whilst in Shanghai I had another view of a Chinese funeral, on a rather more elaborate scale. Being invited into the house, which was gaily decorated on the outside with lanterns and banners, I passed down a similarly decorated passage into the room where the chief ceremonies were taking place. The coffin, draped in white, was placed at one end, and in front of it numerous cooked foods, which were from time to time offered up to the spirits; while the mourners, also clad in white, prostrated themselves frequently before the coffin. This is kept up for about a week before the interment takes place, open house being kept day and night, and free refreshments provided for any one who likes to go in. The rooms and passages were all gaudily decorated, and the musical portion of the programme was furnished by a small band of musicians, who produced horribly discordant and weird sounds from correspondingly weird and uncanny looking instruments. The whole proceedings were very much after the style of an old-fashioned Irish wake. The feasting and general jollification, children dancing, or playing and amusing themselves in close proximity to the death chamber, was very curious. At the end of all these ceremonials the coffin is taken to the burial-ground. It must not, however, be supposed that all Chinese funerals are conducted on this magnificent scale. In some cases the coffin is merely taken out of the house and placed on the ground

without any covering of soil at all, until it finally rots away, leaving the contents exposed. Whilst passing up the river on the way to Shanghai we saw hundreds of these coffins in various stages of decay.

The Chinese are a fine body of men, and if they would only combine, and have the soldiers better trained, would be the equal of any nation in the world. But, as a people, they care much more for the condition of their farms than they do for the welfare of the country, and hence their present condition. The lower classes are expert thieves; they will steal any thing from a gold watch to a piece of piping, and if the desired article cannot be reached by hand, it is probably within range of a stick with a hook on the end. An incident which occurred while I was there gives a rather good idea of their audacity and cleverness in this line of business. A friend of mine, whilst asleep in bed, had the bed sheet taken from under him, and it was discovered afterwards that this had been done by tickling his ear until he moved, and, as soon as he moved, a gentle pull was given to the sheet, and this was repeated until the whole sheet was drawn out. This thieving propensity is, however, only amongst the poorer classes; courtesy, honesty, politeness, and generosity being the almost invariable rule with the better class merchants and officials.

Smoking in China is universal. The women also smoke.

The chief vices of the Chinese appear to be gambling and opium smoking. They will gamble all day long and often through the night, and it is no uncommon occurrence for a Chinese sailor to receive his pay for a six months' voyage and be found next day without a cent of his own, the money having gone in satisfying his passion for cards.

Opium smoking is the curse of the country, and many of our passengers were addicted to the habit, and would lie about the deck all day long in various stages of somnolence. The confirmed opium smoker is easily recognised by his gaunt and haggard aspect, and by the impaired nutrition of all his tissues, until in the end he is apparently nothing more than skin and bone. There seemed to me to be one great drawback to opium smoking, in the fact that it takes about fifteen minutes to prepare the pipe, and one minute to smoke it. Begging is a recognised profession in China, and the professional beggar will cut himself and produce most horrible sores or deformities to excite the sympathy of the passer-by. Many of the deformities are produced in childhood, intentionally, by the parents, with a view to the child carrying on the business in after life.

In spite of all the apparent civilisation of China, piracy still exists on the open seas, and one has only to take a walk through "China City," outside Shanghai, to see nearly all the tortures of the Middle Ages still carried on. I should not advise any one with nerves to visit this place, for the smell and the sights are enough to sicken the average person.

I cannot do better than sum up China by quoting Wingrove Cook, who describes it as the place—"Where the roses have no fragrance, where the labourer has no Sabbath and the magistrate no sense of honour; where the place of honour is on the left hand and the seat of intellect in the stomach; where to take off your hat is an insolent gesture and to wear white garments is a sign of mourning." I might also add—"Where the form of greeting is to shake hands with yourself."

Leaving Shanghai, we set out for Japan, arriving at Moji on Christmas Eve. After dropping anchor, and looking round, we seemed to be in the middle of a small lake, with apparently no entrance or exit, with mountains all round—truly an ideal spot. On the one side there is the small village of Simlasachi, and on the other our proper calling-place, Moji, which is a small fishing village and coaling station. The process of coaling here is an interesting sight, the work being done by people of all ages, and of both sexes—men, women, and children—all toiling for the munificent wage of 6d. a day, some of the women having tiny babies slung on to their backs. Ladders of planks are slung from the side of the vessel, and on each plank stands a worker. The coal is then passed up from hand to hand in small baskets from the barges down below on to the deck, and then along other planks to the mouth of the hold, where it is finally dropped down. The work is done with marvellous rapidity, and to the tune of a somewhat mournful chant. Moji is a small, dirty village, the chief feature of the streets being

mud. As it has only recently been made an open port, study can be made of the Japanese as they appeared before much contact with Europeans.

Leaving Moji, we entered the Inland Sea, on our way to Kobe. The celebrated Inland Sea is really beyond my power to describe. It seems as if all the loveliness of the world had been crowded into one short eighteen hours' sail. Wooded hills, beautiful islands, and rocks forming narrow passages where there seems only just room for the ship to pass, all follow in quick succession, and nightfall comes but too quickly to shut out the view, which appears again with even more splendour in the early morning.

Kobe, our next port of call, presents rather a busy appearance, and with Hiogo, a continuation of it, forms quite an important district. Here, as apparently everywhere in Japan, is the same lovely country, with its hills and waterfalls in the background. The town itself is something like Yokohama, but not quite so Europeanised.

Yokohama, our last port in Japan, is the gayest of all the towns, and certainly there are plenty of amusements to beguile the weary traveller. Here I paid a visit to a Japanese theatre. The performance commenced at 2 o'clock in the afternoon and was due to finish about midnight or some time next morning. I did not remain to the end. Many of the audience, however, seemed determined to sit it out, as they had brought refreshments and were making tea in the intervals between the acts. The most curious feature of the performance is the boys in black caps, who are supposed to be invisible and crouch behind the performers to move or alter the stage furniture.

Riding along the Japanese streets at nightfall, in the inevitable ricksha, one is struck by a curious low whistle heard at intervals. This is made by the blind men, who are not, however, begging, as they earn money mostly by practising massage, and some by acting as money-lenders.

On New Year's Day, when every one seemed to be drunk on saké, the chief intoxicant, I was taken to make a call on a Japanese family, and was rather surprised to find I had to take my boots off on the doorstep, according to the custom of the country. On entering the room a cushion was given me to kneel upon, there being no chairs, and then tea was brought in. I did not like the tea, but had a pleasant chat with our host, who could speak a little English, until it was time for us to find our boots and depart. The Japanese are a rather diminutive race, of poor physique, but making up for their shortness of stature by the greatness of opinion of themselves. In the larger towns they are making rapid strides in civilisation. Wearing of European dress is common, and they think it suits them. Their self-complacency and cheekiness seems to be proportionate to the degree of civilisation. You do not receive the same amount of courtesy from the Japanese officials you receive from the Chinese, leading one to wonder if it is possible to become too rapidly civilised.

The ladies are rather attractive in their manners, but very childish; even the middle-aged ones may be frequently seen playing childish games in the streets. The chief disfigurement of Japanese women is the practice of blackening the teeth. This used to be done, I believe, by both men and women, but was prohibited for men in 1870, and the custom is now confined to married women, and is dying out amongst them.

All business calculations in Japan and in China are made by means of the "Soraban," which consists of a number of wooden beads, sliding on wires fixed in a frame, something like the toy by means of which English children used to learn the multiplication table.

We may think when hearing some of the tuneful present-day so-called Chinese and Japanese plays in England that the Japanese are a musical nation. This, I am sorry to say, is not the case. The instruments they use are mostly stringed, and the sounds produced are both mournful and hideous, and even the singing of the geishas can hardly be described as tuneful.

Leaving Yokohama, we made our way, *via* Moji, Hong-Kong, and Singapore, to Sourabaya, our first calling-place in Java; thence to Samarang, and finally to Tanjong Priok, a small village about 10 miles from Batavia.

Java, aptly described as the "Garden of the East," is one of the most beautiful and flourishing of the Dutch possessions, the export of produce being simply enormous.

The poorest feature of Java is hotel life. The prevailing costume in the hotel is distinctly undress, and it is quite a customary thing to see distinguished persons lounging about the corridors and verandahs in the same costume they wore in bed. The hotels are beautifully furnished and decorated, but the food, even at the very best hotels, is poor and is badly or half cooked.

The most popular meal of the day seems to be the rice table. As the name implies, the chief element of this meal is the plate of rice, which is placed before you first. Then is brought round an assortment of other foods, such as fish, fowls, beef, lobster, curry, omelet, onions, and a little of each of these is expected to be placed in the rice, until there are about ten different kinds of food on the same plate. This is, at first, not very enticing, but after a while you really begin to like it.

The country round Java is like that in the vicinity of Singapore; and here also are the Chinese, though not in such large numbers as at Singapore.

Fruit is here in perfection and the mangosteen in all its glory (being, I believe, the only fruit our gracious Queen has not tasted. It cannot be brought to England, even in ice).

Leaving Java, we set out for Suez, Marseilles, Amsterdam, and home, and ended the pleasantest trip it has been my good fortune to enjoy.

NOTE ON PIDGIN ENGLISH.

Mr. W. T. Dobson, in the *Argosy*, makes the following remarks on "Pidgin English":—

Pidgin is generally supposed to be derived from a series of changes on the word *Business*, which, being first contracted to *Busin*, then through the form of *Pishin*, latterly assumed that of *Pidgin*, and, while always retaining its original meaning, there seems little chance of its dying out. It is even taught to some extent in schools, and it is no uncommon thing to hear two Chinamen from distant and different parts of their own country conversing together in *Pidgin*, their own proper dialect being unknown the one to the other. *Pidgin* is easily picked up by the common and shore-bordering working class, and a good knowledge of it is of much assistance in the difficult task of learning Chinese proper. There are now versions of several common English songs in *Pidgin*, and here is introduced "Dis velly good sing-song," being a version of an old nursery rhyme:—

Singee songee sick a pence,
 Pockee muchee lye ; (rye)
 Dozen two time blackee bird
 Cookee in e pie.
 When him cutee topside
 Birdie bobbery sing ;
 Himcee tinkee nicee dish
 Setee foree King.
 Kingee in a talkee loom (room)
 Countee muchee money ;
 Queenee in e kitchen,
 Chew-chee breadee honey.
 Servant-gilo shakee,
 Hangee washee clothes ;
 Chop-chop comee blackee bird,
 Nipee off her nose.

To English speaking people it will seem a fearful thing to have a translation of Milton or of Shakespeare into *Pidgin*, and one can fancy the feeling with which the soliloquy would be listened to when "To be or not to be" was begun with "Can, no can." There is, however, a famous passage from Home's "Douglas" in existence, beginning—

"My name belongey-Norval, topside-galow that Grampian hill
 My father catchee chow-chow for him piecey sheep," &c.

A LADY'S IMPRESSIONS OF HONG-KONG.

By MRS. UNSWORTH.

[Read to the Society at Finchwood, Marple, on Saturday, June 30th, 1900, at 6 p.m.]

THERE has been within the last twenty years a growing interest taken in our own colonies. It may be that travelling has become so much cheaper and better, that we see more of one another. Formerly a person going out to Australia or the East seemed lost to his friends and relatives for the rest of his life, only a small percentage returning. Now it is quite customary to visit friends and relatives living in the colonies, a journey to or from the antipodes being a very ordinary affair, and undertaken by some persons and families every few years. And then for those who do not visit the colonies, but who read of them, we know that the writings of Rudyard Kipling and others have done much to stimulate a sympathy and feeling of brotherhood among all races living under the British flag.

If we look at a map of the world, the British colonies being marked in some vivid colour, Hong-Kong looks small and insignificant compared to the large areas of Australia, Canada, or the possessions in Africa; but its importance is not to be estimated by its size alone. It is the position which makes it so valuable—first as a naval station, and secondly as a distributing centre for trade.

It is marvellous in how short a time it has grown to its present importance. Sixty years ago it was a "barren, rugged island," rising steep out of the water. At the water's edge were a few fishing villages, the resort of pirates. In those days no ships anchored there, but went to Canton, about eighty miles up the Pearl River, or stopped at a Portuguese settlement called Macao, some forty miles from the island of Hong-Kong.

But Macao was not all that could be desired for loading and unloading vessels; and Canton was worse, because of the many restrictions put on ships entering that port by the mandarins and governors of that province. Indeed, so impossible did they make it for British vessels to do any trade, by their fines and heavy duties, that the trouble culminated in bombardment, and after the second bombardment the island of Hong-Kong was granted to the British.

Then began the building of the city of Victoria, which has grown rapidly into a rich colony. The harbour is naturally a very fine one, being surrounded by high land, and entered by two narrow passes, one from the east and one from the west. Large tracts of land have been reclaimed from the sea, on which level roads have been made, which were impossible at first, as there was no flat ground.

Huge reservoirs have been formed among the hills for water supplies, roads and waterways, built in such a manner as if they were to last for ever, to resist the tropical storms.

Fine buildings, and gardens of tropical luxuriance, arranged in terraces, make it a fascinating city, set in the midst of a stormy sea. Also, by a judicious selection of the right trees for planting, the island is becoming healthier. At one time it was named the "Graveyard of the East," but that name has lost its meaning now, as the fever and miasma are receding before scientific remedies.

Any one visiting Hong-Kong would be wise to choose the months of November and December, as then the first impressions of this interesting island would be very delightful. Here there are bright blue skies, gay sunshine, and a fine, clear atmosphere, in which distant objects look marvellously near and beautiful.

The ships coming in wend their way amongst the many islands and through a narrow pass, into what almost looks like a land-locked harbour. A bright panorama unfolds itself, the city rising out of the sea, with its terraces of houses and gardens.

Leaving the ship, to go on shore, any one can go in a steam launch if they wish; but, in order to see the different phases of life, it would be better to go in a native boat called a sampan. The proprietor of this boat

(the largest of which are from 24 to 30 feet long, and small ones about 12 to 15 feet) is a Chinaman, who owns no other house or home than this frail barque, in which he shelters his wife and numerous family, sometimes father and mother besides, in all three generations. They hold their family gatherings, their parties and festivities in it, and keep poultry. Just before China's New Year the company of a goose kept in an orange-box makes it a little livelier for the other emaciated cocks and hens.

These boats attend the ships to pick up passengers and carry luggage, earning a few pence for the trip. A space with a seat and a cover over it is set apart for the passengers, whilst the family ply the oars; the old grandmother, generally steering, nursing a baby, which is strapped to her back, and cooking at the same time.

On landing at the wharf one sees how large the Chinese population is. There are always crowds of coolies waiting about the streets and jetties; some with chairs on poles, almost like the old sedan chairs, to carry passengers up the hills; some with jinrickshas for hire along the level roads. There are no horse conveyances of any kind; this strikes one as very strange, coming straight from Europe. The great amount of traffic, the rushing about from the wharves to the warehouses, the loading and unloading of ships, and everything is done by human creatures. A horse in Hong-Kong costs more than many coolies, manual labour being very cheap.

The streets in the European part of the city have a fine appearance; the buildings are of granite, and they are built with arcades, under which pedestrians walk to keep out of the glare of the sun. But the European part is smaller than the Chinese part, the Chinese population being so numerous.

Being a British colony, the Chinese are not allowed to build such narrow streets or crowd together so much as they love to do in their own cities. They are compelled by Government to observe some rules of sanitation; but they try to evade these as much as they can, and make their streets as narrow as they possibly dare, and crowd them up with massive signboards hanging down, lines of clothing, and other obstacles. One can step out of Queen's Road, the central avenue where all the fine shops are, into a dirty narrow street where the poorer Chinese are living in a dirty, miserable condition and keeping up all their own unsavoury habits and customs.

The crowds in the streets are of all nationalities; of course, the Chinese predominating. On first impressions, the lower classes seem to have no difference of sex; men and women look the same, and one person the exact resemblance of another. But by and by you find out the men wear the long pigtail, whilst the women have a little knot of hair behind; and also, on closer observation, they begin to assume different features and expressions, some faces more attractive and some more repellent than others.

A Chinaman dearly loves a crowd, and to jostle and push, and there being so many of them, it would be impossible to get through some parts of the city if it were not for the policemen; some of these are Chinamen, some British; but the latter are mostly on duty at night time, whilst during the day the streets are kept in order by the Sikhs, very picturesque-looking individuals, with their coloured turbans and white uniforms, fine looking men, six feet high and more; these put the fear of men into the Chinese and keep the streets passable.

There are other national elements in Hong-Kong besides Europeans and Chinese. There is a large community of the Macao Portuguese, and there is also a Parsee community.

With all these different nationalities the streets present a very interesting spectacle. Before you can scrutinise one type some other steps in front of you. You may be studying a Korean, when a Hindoo will come and obstruct the view. Then whilst you are looking at a Japanese man or woman a Malay will bob up before your eyes. What with the native Indian soldiers, the British soldiers (sometimes a Scotch regiment in kilts), and the naval uniforms, the bluejackets, the marines, the sailors from every country, it becomes too bewildering, and presents a perfect kaleidoscope for colours and races.

The result of having a distinct and separate labouring class like the Chinese coolies, and labour being so cheap, is, that manual labour, except of a very agreeable kind, is despised, and the tendency is that Europeans become rather luxurious, and lead easy lives, as it is usual to keep many servants.

The European houses are built with large lofty rooms, and wide stone verandahs round the house, and some with gardens and tennis courts. But as the ground is limited and valuable, and as the houses cover more space than they do here, it makes the rents very high, in most cases absorbing a third or fourth of one's income. The servants' quarters, kitchens, and cooking offices are built a little distance from the houses. This is usually the case where servants are of a different nationality from the masters and mistresses.

All the servants are men, except the nurses; no Chinawoman will go out as a cook or a housemaid, all that is left to the men.

One might think that under these circumstances housekeeping was a very complicated business; on the contrary, it is very easy. If you hire a cook, he takes all the responsibility of providing, does all the shopping, thinks of everything needed, and soon adapts himself to your tastes and your income. Of course, he makes his own little commission; but it is very little, and is an understood thing. He will cook and do all this for the alarming wages of 28s. per month, or seven shillings per week, some more, and some less; besides, these are board wages, as he keeps himself in food. Then the house boy—who, by the way, may be fifty years of age; once a boy always a boy—takes all responsibility away from you of cleaning and looking after the house. He gets a coolie under him to do the scrubbing and washing of floors and windows (because a boy considers himself above scrubbing and cleaning), but he looks after all the rooms and the table, waits on and keeps them in order. Like the cook, he finds his own food, and all for the sum of 5s. per week; and the coolie, who does the scrubbing and cleaning, fetching, and carrying, enjoys the magnificent sum of 4s. per week, on which he feeds and clothes himself and keeps his wife and family. Hong-Kong may be described as a paradise for housekeepers, as far as regards an easy time and freedom from care, as the Chinese servants have adapted themselves to the business so well. A good house boy is a perfect treasure; he stops for years, indeed all his life, in a family that he likes, studies all your wants, takes care of all your property in the shape of clothes, furniture, etc., and his only dissipation will be a day or two off at China's New Year, in which to visit his friends, and about three days some part of the year to visit his ancestors' graves, and also his wife and family; even then he takes care to provide a substitute.

The intercourse between masters, mistresses, and servants is carried on through the medium of pidgin English; this is a kind of easy baby language that was introduced to trade with before the Chinese learned proper English. For instance, if you wish to intimate to your cook that you are having company to dinner, you say to him: "You catchee number one dinner; have got four or five picee man come." Or, if a mistress wanted to tell her boy he talked back to her too much, she would say: "You bobbey my too muchee, my no likee so much talkee; savey?" That interpreted would mean: "You talk back too much, and I don't like it; you understand?" This ridiculous jargon used to be the only medium of conversing between the Chinese and the Europeans, and is still used to some extent; but it is dying out, and intelligible English more generally spoken, as there are English national schools for Chinese. And they themselves have established schools for the children of merchants and tradesmen in which English is taught, so that in the future there will be no need for this pidgin English.

The Chinese are a very commercial people, but the social barriers separating them from Europeans are many; besides, the language being such a difficult one for foreigners to learn, it would seem that they could not very well combine in business, and yet they do, very extensively too.

To facilitate business relations a species of business man has sprung into existence, a species never heard of except in that part of the world, the Straits Settlements, and the China coast. This man is called a *compradore*. It sounds like a Spanish word, and has most probably been imported from the Philippine Islands. The *compradore* is always a Chinaman, who speaks English, and often several Chinese dialects besides. He is the middleman, the go-between in all business transactions between the Chinese and other different nationalities. Every bank has its *compradore*, who is a very well educated and influential man. Every European firm, from the largest house of world-wide reputation down to the smallest back-street shop, keeps its

compradore, who does the Chinese part of the business. Every ship on the coast carries one, who manages the Chinese passenger traffic and the cargo. And every housekeeper employs one (who is a general store-keeper) to procure necessities for the household. Indeed, the compradore is the universally-acknowledged agent between the nationalities, and to dispense with his services would be almost impossible.

The most delightful time of the year for pleasure are the months of November and December; then the island is charming, the temperature is cool and bracing, walking and all out door exercises become enjoyable. The walks over the hills and on the Peak, where many residences are built and good roads made, are as beautiful for scenery as any one could desire. One can get on fine roads varying from a thousand to eighteen hundred feet above the sea level, and walk for many, many miles in the midst of grand views, the clear atmosphere throwing out very distant objects with great distinction. The rugged hills on the mainland rise up peak beyond peak, and far out, as far as the eye can reach, numerous islands dotting the ocean; and wending their way among the islands are what look to be tiny boats, but are really large steamers, making their way out to sea or into this haven of rest; for at this time of the year the ships come in with their funnels white and crystallised from the spray, and their decks washed clean by rough seas. It is a hard time for ships coming from the south, for it is what is called on the China coast the north-east monsoon. The wind and the current set in from the north with great force; ships going down south get rushed down, but ships coming up against it have to struggle like giants. It makes Hong-Kong and all the coast ports bright, clear, and bracing, clearing them of all the humid, bad vapours of the hot season. Every thing becomes very dry; wood that has been expanded during the rainy season dries and shrivels, furniture and doors crack.

As I said before, outdoor exercise is delightful at this period, and Europeans take full advantage. Golf, cricket, and tennis are in full swing, cycling and walking indulged in more than in the other seasons. And in the houses the fires are lit, and friends gather round in the evening, and begin to talk of the homeland, and of their youthful days, and of old friends left behind. So bright and happy do we feel in this clear, dry atmosphere that it repays us in a short time for the sultriness of the summer. This is among the Europeans; I don't think the Chinese population enjoy it to the same extent; their blood is not so warm, and they are not so fond of taking exercise for pleasure as people from a temperate zone.

The result is often disastrous to them; they turn out in all their warm garments, which consist of padded coats, with long sleeves to cover the hands. These garments are frequently stored away in the pawnshops for safety during the summer. The bringing out of these old garments, and the huddling together in their small houses for warmth, gives the disease germs that have been lying idle through the summer a fair field in which to display their activity; and the consequence is that small-pox and typhoid become rife among the native population, and doctors have a hard time.

After a few months of this dryness the weather changes, and then the rains and floods come. The streams come rushing down the hillsides; strong waterways have been made, otherwise there would be great destruction to property. The streets in the city become little seas of mud; then are we glad of our chairs and jinrickshas to carry us safely through it. The jinricksha men and chair men, indeed all the coolies, go about in bare feet and bare legs to wade through it. They wear overcoats made of attap leaves; it is a thick long fringe of fine long leaves hanging from the neck. This cape, and the hat, like a huge mushroom, give them a most grotesque appearance; but the streets are lively with these queer looking individuals in spite of the rain.

This season is the breaking up of the north-east monsoon, when the winds and currents from the north abate their violence, and the south winds come, bringing the rains, and afterwards the warm south breezes, which increase in heat as the sun travels upwards towards the north. As the summer gets on towards June and July, then the fierce heat is with us. Houses can't be opened up too much, doors and windows are gaping wide to let in the smallest breeze: the thinnest of clothing can only be borne. People live as much as they can on the large verandahs, just shading them

with bamboo blinds and plants from the fierce glare. In the large places of business, such as banks and offices, and also in the dwelling-houses, the punkahs (which are large fans suspended from the ceilings) are swinging. Every Chinaman carries his fan, which he uses also as a screen.

The mid-day sun is terrific in its glare and heat; then it is that the people in the streets seek the shelter of the arcades at each side. The Europeans cannot walk in this baking, glaring sun, but are carried about in the chairs, with covered tops and sun blinds all round.

This fierce heat generates the tropical storms peculiar to the China Sea, called typhoons. This is a Chinese name; "ty" means large, "phoon" wind—meaning a great wind. Before these storms break, very often the heat becomes almost unbearable; the night as hot as the day; there is a great stillness, not a breath of air seeming to circulate or a leaf to move. It almost appears as if the atmospheric elements were pausing to meditate on what they should do, or looking round before they began their work of destruction.

Some time before the storm bursts, the observatories in Hong-Kong and Manilla are very busy taking observations, telegraphing backwards and forwards the changes. The Hong-Kong observatory stands on a hill, and from this, and from the masthead of the "Tamar," the receiving ship stationed in the harbour, and from other prominent places, a signal is hoisted to indicate that a typhoon is blowing. If it is a red signal, not much alarm is felt in the colony; for that means it is more than three hundred miles away, and may travel in another direction from the colony. But if a black signal is hoisted, that is more serious, as that indicates it is less than three hundred miles away. And if a gun is fired, that is to warn the people that it is travelling in the direction of the city, and may strike there. Householders then prepare as if for a siege; doors and windows are barricaded, every movable article is taken in, all plants and shrubs in pots removed to shelter; business is suspended; ships lying in the harbour get up steam and see to their moorings; any vessel discharging or taking in cargo at any of the wharves must leave the wharf and go to some sheltered bay and anchor; all the smaller craft, cargo boats, sampans, of which there are very many hundreds, clear out of the harbour and go and pack themselves close in a small bay behind the breakwater. Places of business are closed, shops shut, business men hurrying home, because the ferry boats running across the harbour and connecting the city with the peninsula of Kowloon (which is a favourite place for villa residences) stop running, and then there is no communication between the island and the mainland; all traffic stops. The last signal given is two guns fired in quick succession; that means the storm is on us.

Sometimes the outside edge of this huge circular wind may just strike the colony, the centre being at sea; but if the centre travels over, then great havoc is worked. The wind comes first in sharp gusts, like squalls; these increase in violence and frequency until it bursts into a terrific roar, in which one can scarcely hear one's own voice. The sea in the harbour gets lashed into fury, and beats against the wharves, and the blocks of masonry on the quay, sometimes bringing them down. The spray from the sea is thick and blinding, sometimes accompanied with rain and thunder and lightning, all the time the wind rising and increasing in violence. This struggle of the elements lasts from twelve to eighteen hours, then begins to abate; but sometimes the typhoon, which travels in a circle, has re-curved and comes back again to the same place, and inflicts a second dose; but that is not often, and after about twenty-four hours the elements quieten down, and the city resumes its usual aspect. The sun comes out after a few hours and exhibits the destruction that has been wrought. Roofs and chimneys blown away, roads blocked with trees torn up by their roots. The shore strewn with wreckage of boats; here and there a boat drifting bottom upwards, and masts sticking out of the water where others have sunk. In an unusually severe typhoon steamers have been washed right up on to the street.

After October the season for these terrible storms passes away, and we come round to the dry season again, which I have described; and so we go round the calendar.

As I have already said, the Chinese, as British subjects, form the largest part of the population. They enjoy all the privileges of British rule; at the

same time they are allowed, within certain limits, to keep up their own customs and traditions. They have their own festivities recorded in their almanacks, in which everything is dated according to the moon.

The first and principal of Chinese festivals is the New Year, which begins the first day of the second moon of our year, so that it oftener falls in February than not. At this festival the Europeans are obliged to take a holiday also, because no Chinaman, whatever his station in life, will do any work. For weeks before, preparations are going on among the Chinese. A respectable Chinaman must begin the New Year free from debt, so that amongst the tradespeople there is great activity, collecting in their accounts, and discharging their own liabilities. The last day of the year the Chinese streets are lined with stalls, selling goods of all descriptions; and the tradition is that they will make alarming sacrifices in order to draw in the money. But this is a delusion and a snare, as they are quite well aware of the universal love of making a cheap bargain among all nationalities, and so they prepare goods specially; they even make quantities of crockery to appear thousands of years old, with innumerable cracks, and bits chipped off, to beguile the curiosity hunter.

The streets are thronged with purchasers; every one buys a pot of flowers, for it is a good omen amongst the Chinese to have plants in flower at that season, and the flowers and plants are everywhere in gorgeous profusion of blossoms.

The first hours of the New Year are greeted with tremendous discharges of Chinese crackers, volley after volley, from all parts of the Chinese city, and deafening as artillery. If the Chinese were allowed to do altogether as they pleased, it would become a great nuisance, this letting off of so many crackers; but the Government allows them twenty-four hours in which to do as much as they like. After that they must moderate it so as not to annoy the other population. Then comes the feasting and visiting.

The Chinese merchant usually resides at his place of business, and there are a few of the better streets in the Chinese part of the city occupied exclusively by these men. It is very interesting to pay visits in these streets on this day.

The front apartment of the ground floor is open to the street. It is hung with gorgeous silk embroidered banners. There is a kind of an altar in a prominent part of the room, on which pose sticks in a vase, which are kept burning all the time (this is a religious rite); the altar is also decorated with flowers and fancy sweetmeats (these are offerings to the spirits who preside).

The master of the house sits in a square ebony chair, dressed in a brightly coloured silk or satin robe, to receive all the good wishes of his friends who come to visit him. Whether Europeans or Chinese they are received with a great amount of ceremony, bowing very low, and then exchanging the good wishes for the season. Then they offer refreshments round, sweetmeats, and their own making of wine. This goes on all day, and then in the evening great feasts are partaken of amongst themselves.

The domestic servants of the Europeans expect to do no work that day. They will just put a plain breakfast and a plain dinner on the table, but nothing more; and any one newly arrived in Hong-Kong, and newly starting housekeeping, will get quite a surprise, at the gorgeous apparel of the domestics. Brilliant satins and brocades are worn by the house boy and the cooks and assistants.

All the Chinese houses are hung with red cloth outside, and round the lintels of the door; this has some religious origin, something symbolical of heaven.

This holiday is kept up for three or four days, and then gradually subsides, businesses and trades resuming their usual round.

Then on the seventh day of the seventh month, which falls somewhere about September in our calendar, there comes another big festival, "The Feast of Lanterns." All the houses in the Chinese town are covered and illuminated with hundreds and thousands of fancifully shaped lanterns. The effect is very pretty indeed—like fairyland. Every child, even the young baby, has a lantern of some kind. They are made in all kinds of fantastic designs; birds, fishes, and animals being represented. The boats in the

harbour are covered, too, with these lights, making the water glitter like the firmament.

Another feast is "The Feast of Ancestors," when every Chinaman visits his father's and grandfather's or his more remote ancestors' graves, and leaves an offering there. There are no particular portions of ground set aside and fenced round as burying-places among the Chinese. They bury on the hillsides, or in the fields, wherever they can obtain a patch of ground. At this time of the year these graves are all decorated, and there are offerings of food and imitation money and paper clothes for the departed lying on them.

The Chinese are very fond of processions of all kinds, at weddings and funerals; but they are most disorderly processions; some of the followers are walking or straggling, some running. At the funerals, one sees a coffin, covered with some rich silk embroidery, borne along by coolies in the most tattered and dirty garments imaginable; then about thirty or forty yards away some of the mourners, in their dirty white head-coverings, come strolling along, and howling in a professional manner; then a long distance behind these, running or trotting, coolies carrying tables on which food is spread.

The wedding processions are the same, part in one street and part in another, having no apparent connection with each other. The bride, shut up in a close-covered chair, into which no eyes can peer, may be streets and streets away from the musicians belonging to the wedding or the coolies carrying banners and decorations.

But the most magnificent of all is "The Dragon Procession" (the dragon being the emblem and the guardian of China, as the lion is emblematic of England). Of course, the British Government do not allow the Chinese to arrange these things, or to parade about just as they please; there are certain restrictions. So whenever a dragon procession is organised they have to get permission from the Government, and then they are allowed to go through so many particular streets on certain days, so that it lasts for a week or two before they have paraded through every street, and thousands of pounds are spent before they finish.

The principal feature is the representation of a huge dragon, about fifty feet long, covered with silver scales, and an enormous head and tail. This is carried along by about eighty or a hundred men, whose bodies are hidden inside the frame of the dragon, only their legs showing, which look like the legs of this huge reptile; they make it writhe its body, rear its head, and lash its tail as if alive. Enormous silk banners are carried also, and silver cabinets with bells jingling; tables laid out with sweetmeats; children painted and decked out in gorgeous dresses, perched on stilts; coolies walking in most elaborately embroidered silk robes, with their dirty rags peering from underneath; roasted pigs carried whole on poles—a mixture of profusion and poverty, rich silks and dirt, tawdry tinsel trappings covering up disease. But this procession and exhibition of the all-powerful dragon is supposed by the Chinese to avert calamities, and work a powerful influence for good, in some roundabout way that is not very plain to Western ideas.

Then, in return for all this toleration of their customs, they take an interest in European holidays. When Christmas comes round the Chinese show their goodwill in giving us our seasonable greetings very heartily. Our servants will put on all their rich clothes on purpose to come and wish us a "Molly Clistmas," and the Chinese shopkeepers give away Christmas gifts to their European customers, and send toys to their children. And the cooks remember the roast beef and the plum pudding better than we do ourselves; they think it some part of our religion. In this way the British Government allows the Chinese subjects to live their own lives and follow out their own customs and traditions.

And thus are the barbaric splendours of the East mixed and jostled along in the streets with their more recently and more highly civilised fellow-citizens from the West: Europeans and Asiatics apparently mixing together, but really going on their own separate ways, and differing very widely; for the convenience of business, and for mutual advantages, holding friendly relations, but socially separating as far as the East can be from the West. It is a strange conglomeration, and how it will affect the future, one wonders, but cannot make any conclusions.

BEACH FORMATION IN THE THIRLMERE RESERVOIR.

By R. D. OLDHAM, Geological Survey of India.

(*Abstract of a paper read before the British Association,
Bradford, 1900.*)

READERS of Mr. Marr's work on the "Scientific Study of Scenery" will recall the contrast drawn between the irregular and angular outline of the Thirlmere lake-reservoir and the more gracefully curved outlines of natural lakes, where the irregular outline, due to submergence of a land surface shaped by subaërial agencies, has been modified by the action of wind, waves, and streams in wearing away the prominences and filling up the re-entering angles.



FIG. 1.—BEACH FORMING ON THE WESTERN SHORE OF THIRLMERE.

The contrast between the Thirlmere reservoir and the other lakes of the Lake District is not, however, so striking as might be expected, for these lakes retain their original outlines to a very large extent, and it is only in part that their shore lines have been appreciably modified. To the ordinary tourist, therefore, there are only one or two places where the artificial nature of the Thirlmere lake, in its present form, is obvious, but to the traveller who has learnt to observe the features of the ground and to reason about their origin it is, as Mr. Marr has justly observed, a useful object lesson.*

The object lesson is useful, not only in regard to the actual form of the lake shores, but still more so in regard to the changes they are undergoing. All along the shore incipient beach formation can be seen, and this beach formation is especially well marked towards the

* J. E. Marr, "The Scientific Study of Scenery," p. 193.

northern end of the lake, where the shores close in and are exposed to the force of waves driven along the length of the lake by the prevailing southerly winds.

Here a well-marked cliff and beach have been formed in the easily-eroded drift on the eastern shore, and on the western is the pretty little bay shown in the photographs reproduced. In Fig. 1 the contrast between the irregular shore line, where erosion is still going on, and the curved shore line of the shingle beach, where a state of equilibrium has nearly been reached, is striking; Fig. 2 shows the beach viewed from behind, and how the waves, after breaking down the wall, in the gap now filled by a wooden paling, have heaped up the beach and formed a bank across the depression in the ground, thus indicating that the attainment of approximate equilibrium has been due not merely to the cutting of projections, but also to the filling up of hollows.

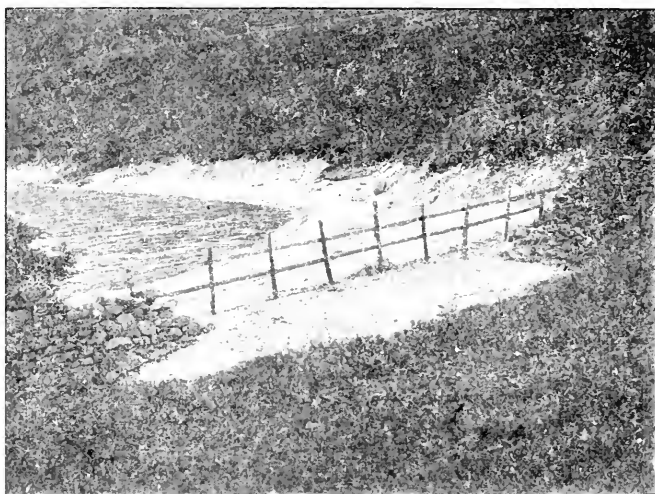


FIG. 2.—THE BEACH IN THE SMALL BAY SEEN IN FIG. 1, VIEWED FROM BEHIND.

It is seldom that so good an opportunity of observing and recording the effects of the forces of nature occurs. Here there is no need for inference or induction; we know that the whole of the beach has been formed by the waves of the lake in the few years which have elapsed since its level was raised, and the amount of change which has taken place in those few years shows that it could easily be traced from year to year.

Few more interesting observations or records could be made than those of the gradual changes taking place on the shores of Thirlmere, where beach formation may be traced from its commencement, and no one is more directly charged with the duty of making and recording these observations than the scientific societies of Manchester, the city which made the present lake.

CAPE METEOROLOGICAL REPORT FOR 1898.

2, George Square, Edinburgh.

Sir,—The enclosed extracts from the Meteorological Report for 1898 of the Government, Cape of Good Hope, are forwarded to enable a comparison to be drawn of the class of weather to be expected in 1900 and 1901 during the campaigns in Natal and Orange Free State borders. The general weather would seem to be rough, like Edinburgh weather, but not unhealthy, and like the climates of the temperate zones, a sort of cross between the trades and the brave west Antarctic winds, but these seem not to be recorded. Bartholomew's new meteorological atlas is now in the Geographical Library, and I see my contribution on "Ocean Rainfall" is noticed in the text and lists, but not in the charts.

W. G. BLACK, F.R.M.S.

Mr. E. Sowerbutts, F.R.G.S.

NOTES ON THE WEATHER OF 1898.

(CAPE COLONY.)

By CHARLES M. STEWART, B.Sc., Secretary, Meteorological Committee.

JANUARY, 1898.

THE weather of January was characterised by unusual coolness, with marked absence of extremes of temperature, a very high percentage (56 per cent) of cloud, and an exceptionally heavy rainfall.

Precipitation.—The disastrous spell of long drought which was the leading feature of the weather of 1897, was completely broken up by the copious rains which fell over practically the whole colony during this month.

Light rains set in over many parts of the eastern half of the colony on the 1st, and continued in increasing quantity throughout almost the whole month.

The rains in the western half, which were smaller in amount, were pretty general at the beginning of the second week, and fell at intervals of from 5 to 7 days.

The rainfall, taking the mean of all the stations, was 5·78 in., or 134 per cent above the average for January.

As a consequence of these heavy falls, floods were common, and a considerable amount of damage was done in many parts; but this was more than counter-balanced by the benefits accruing from dams and vleys filled, rivers running, etc.

Thunderstorms.—625 cases in all were reported from one or more stations every day, but most numerous on the 2nd, 3rd, 14th, 22nd, and 24th.

Hail fell at a few stations on the 1st, 2nd, 3rd, 6th, 17th, 19th, 22nd, and 29th.

A most unusual occurrence was the fact of snow being reported, chiefly on the mountains in the neighbourhood of two or three stations, on the 29th and 30th.

Sleet fell at one or two stations on 12 days.

Fogs, chiefly local, were reported from several stations every day except the 2nd, 7th, 13th, and 31st.

Temperature and Cloud.—The mean temperature, in shade, on an average of all the stations, was 69·8°, with the comparatively small mean range of 19·1°. Judging from the few stations for which mean temperatures are available it would appear that there was on an average a deficiency of about 0·9°, owing to the day temperatures being, on an average, 2·7° colder, while the night temperatures were 1·0° warmer than the average.

Over the Cape Peninsula and the western districts, where the percentage of cloudiness (28 to 35 per cent) was less than elsewhere, the minimum temperatures were just about the average, but the maximum temperatures were 3° to 4° less; elsewhere the cloudiness was much greater (50° to 80°),

and as a natural consequence, while the maximum temperatures were deficient to about the same amount the minimum were from 3° to 4° higher than usual.

The maximum temperature for the month was $108^{\circ}0'$, at Graaff-Reinet, on the 7th. The minimum for the month was $40^{\circ}0'$, on the 30th, at Wagenaar's Kraal, where the highest recorded temperature was $98^{\circ}0'$, on the 7th. There was thus an extreme range of $68^{\circ}0'$ during the month.

At Kenilworth (Kimberley) the maximum black bulb in the sun was $159^{\circ}8'$, the highest shade temperature being $94^{\circ}7'$. The minimum black bulb on grass was $39^{\circ}1'$, the lowest shade temperature being $44^{\circ}0'$. Frost, none reported.

FEBRUARY, 1898.

A fairly uniform distribution of rainfall, low mean temperature, and a moderately high percentage of cloudiness (40 per cent) were the leading features of the weather during February.

Precipitation.—The mean rainfall was 2.62 in., which is 0.30 in. or 13 per cent above the average.

Whilst the actual rainfall was much more equable than during the previous month, its distribution compared with the means was rather peculiar and irregular.

The excess was mainly due to fine rains which fell in the south-east part of the colony, where the totals were about 50 per cent above the averages over an area enclosed by lines drawn from the mouth of the Great Kei River to Buffelsfontein, thence to Graaff-Reinet and round to Port Alfred; it was also commonly from 50 to 100 per cent higher over the Cape Peninsula, portions of the south-west, and the outlying stations along the south coast, and above the average in Damaraland and along the Northern Border, parts of Kaffraria, Basutoland, and Natal.

The 557 cases of thunderstorms were distributed over 25 days of the month, but were not widely experienced on the 6th to 12th, 18th, 19th, 24th, 27th.

Hail fell at one or more stations, in some cases causing considerable damage, on the 1st, 3rd, 6th to 12th, 17th to 20th, the 26th and 27th.

No snow reported, but sleet at Willowvale on the 3rd.

Fogs prevailed at one or more stations every day, except the 1st, 10th, 14th, 21st, and 28th to 31st.

Temperature and Cloud.—In shade the average temperature for the month was $69^{\circ}5'$, with a mean range of $21^{\circ}3'$.

Owing, no doubt, to the smaller amount of cloud allowing radiation to proceed more freely the mean maximum temperature ($80^{\circ}1'$) was $0^{\circ}8'$ higher, and the mean minimum temperature ($58^{\circ}8'$) $1^{\circ}4'$ lower than during January.

A high percentage of cloud (40 to 60 per cent) prevailed during the month all along the south coast and east of 25° east longitude, but fairly clear skies elsewhere.

The average deficiency in temperature amounted to slightly over 1° , the day temperatures being $1^{\circ}08'$ and the night temperatures $0^{\circ}4'$ less than the mean.

The deficiency in the mean maximum temperature was very large at some places in the interior, being $5^{\circ}1'$ at Aliwal North and $4^{\circ}3'$ at Bloemfontein, the mean minimum at these places being only $0^{\circ}2'$ and $0^{\circ}1'$ respectively higher than the average.

The absolute maximum for the month was $107^{\circ}7'$, registered at Dunbrody on the 7th, the minimum for the month there being $46^{\circ}0'$ on the 1st.

The absolute minimum temperature for the month was $35^{\circ}0'$, on the 27th, at Hanover, where the monthly maximum was $93^{\circ}0'$, on the 3rd and 4th.

There was, therefore, an extreme range of $72^{\circ}7'$.

At Kenilworth (Kimberley) the maximum solar black bulb *in vacuo* registered $161^{\circ}6'$, while the highest shade temperature was $94^{\circ}3'$. The minimum black bulb on grass was $40^{\circ}0'$, the lowest in the shade being $46^{\circ}3'$. Frost, none reported.

Sea.—At Dassen Island the mean density of the sea water was 1.0251° , the mean surface temperature ranging from $56^{\circ}0'$ to $61^{\circ}0'$.

[*Cape of Good Hope Meteorological Commission for 1898.*]



Drawn by Mr. Joel Wainwright, J.P.

"NATURE'S HAUNTS, MAPLE."

THE JOURNAL

OF THE

MANCHESTER GEOGRAPHICAL SOCIETY.

ICELAND AND THE ICELANDERS.

By MR. JOHN R. NEWBY.

[Addressed to the Society, in the Library, at various meetings.]



[By permission of Mr. F. W. W. Howell.]

Waterfalls issuing from Lava Bed near Kalmanstunga.

III.

IN the Western classic land, some fifty miles north of the capital, and hard by *Láng Jökull*, lies the pretty vale of Reykholt (*Reykholtsdalur*, the Valley of the Smoking Hill), the home, in the thirteenth century, of Snorri Sturluson, the historian—Iceland's greatest states-

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man. The *Hvita* river runs in loops and curves along this vale, and, at a point shown in the picture below, steaming hot water and vapour issue from beneath honeycombed, birch (Icel., *björk*)-clad lava beds that lie in the centre of the ice-cold stream, named *Nordlingafljot* (where it flows into the *Hvita*, near *Húsafell* farm).

Sunday, October 1st, 1893.—On the occasion of my first visit to the island my time was so limited that soon after 10 a.m. my guide "Siggi," and myself set off on our return journey from the Geysirs, calling at *Múli* farm and paying the account, which was discharged by a shaking of the hand. We shook hands all round. When visiting a family in Iceland it is the custom to salute them according to their age and rank, beginning with the highest and descending (according to your best judgment) to the lowest, not excepting the servants; but on taking leave the order is completely reversed; the salutation is first tendered to the servants, then to the children, and last of all to the mistress and master of the family. It was a frosty morning; about 11 the sun shone out brightly and the air was quite warm. We had, Siggi said, an unusually clear view, looking south, of *Hekla* (=Mantle), which, with its covering of snow, was distinctly visible above a lower range of hills, as also were the ice-bound summits of the *Jökklar* near the south coast; this volcano was then sleeping in snow. *Hekla*, roughly speaking, erupts every forty years; the last eruption of this volcano was in the summer of 1845, but there was a breaking out in the lava adjacent to the mountain in December, 1878. There is a graphic account of an earthquake in the south-east of the island and its results in the work of S. Baring-Gould (who visited Iceland in 1858 and in 1861), called "The Icelanders' Sword."* Hall Caine, who had not, when he wrote "The Bondman," been in Iceland, with all his numerous inaccuracies, gives a romantic description of a journey across the lava beds to the *Lögberg*.† In appearance from the north *Hekla* in configuration much resembles Snowdon; the mountain has three summits, the lowest of which, on the occasion when I saw it, looked black (having no snow on it; the apex is 5,108 feet above sea level. We recrossed the *Brúara* River, and about two o'clock reached *Laugadalr* Farm, where we lunched off some excellent trout, that had just been taken from the lake, and milk. We arrived at Thingvalla Parsonage as the folks were leaving church (5-40). In the names they give to the days of the week Icelanders resemble the Society of Friends in a measure. As with us, Sunday and Monday are "*Sunnudagr*" and "*Mánadagr*," Tuesday is "*Þriðjudagr*" (the third day), Wednesday is "*Miðvikudagr*" (the same as the German "Mittwoche"), Thursday is the fifth day, "*Fimmtudagr*," Friday is "*Föstudagr*" (Fast Day), and Saturday is "*Laugardagr*" (Bathing Day); the Icelanders were accustomed to "tub" on that day; now they retain the name, but not the custom. For more than a thousand years the races dwelling in Great Britain have been in the habit of calling several of the days of the week (Icel., *vika*) after the Scandinavian gods, whose names first appeared in our literature in the time of Dryden. Bishop Percy's translation of Mallet's

* "The Icelanders' Sword, or The Story of Orre-fa-dal." Pub. by Methuen & Co., London, 1894

† "The Bondman, a new Saga." Published by William Heinemann, 1892.

French work on "Northern Antiquities"* should be studied by all interested in the customs and the mythology of our Norse ancestors. In the out-of-the-world island of Iceland this science became more fully developed than in our land. The erudite and delightful essays of the late Professor Max Müller on Mythology, Traditions, and Customs are as interesting as they are instructive.† I so well remember, in "the early seventies" of the nineteenth century, perusing the very thorough work of that talented author, William Howitt (*b.* 1795, *d.* 1879), and of his equally talented wife, Mary (*née* Botham, *b.* 1798, *d.* 1888.‡ At that time the book was considered to be a standard work on the language of the Northern Folk, and it is literally the outcome of *personal* observation. Half a century has passed since this *practical* account was published, and many later works telling of the romances of Scandinavia have been written, but the work of William and Mary Howitt ought to-day to be studied by all who delight in reading about old folk-lore. The English equivalents of some of the months are—for March, "*Travel-Month*"; May, "*Sowing Season*"; June, "*Egg Season*"; August, "*Time of Hay-making*"; October, "*Harvest Month*"; and December, "*Frost Month*." The hours are fractional, after the English (not the German) fashion; thus 1-30 would be called "half after one," instead of "half to two"; just as an English seaman when heaving the lead sings out, "And a half three," he means $3\frac{1}{2}$ fathoms. Samuel L. Clemens, the well-known writer, derived his *nom-de-plume* (Mark Twain) from the sailor's cry, "Mark two." The tale (Icel., *tal, tala*, number) of days is reckoned by nights; a child is said to be so many nights old. In the same way years are counted by winters; winter is the Icelanders' hardest and longest time, and makes more impression on him than does the summer.

We found that our boat-companion Isaac and the "veteran" had just arrived from Reykjavik; they had taken the whole of Saturday and Sunday to get to the point I reached in $5\frac{1}{2}$ hours; they complained of aching pains, and "the veteran," who was a heavy man, said his ponies would not get along; he had no whip, but an ordinary walking-stick. The couple had bought in Reykjavik two of the oddest-looking cloth caps I ever saw, and they looked like father and son. According to their account they had the previous night slept in a filthy hole. Their guide spoke more English than Siggi, but he was inclined to presume. Their ponies (eight in number) compared with mine were a wretched looking lot of animals; they had got them at the hotel in Reykjavik, and not—as advised by me—from Zoëga. It was pleasant having some one to chat to. "The veteran" complained very much of the cold, and wanted to know where he should sleep *to-morrow* night. He prevented both Isaac and myself sleeping most of *this* night, he snored so loudly!

October 2nd. Hard frost during the night; such a bright sunny morning. The lake (*Thingvallavatn*), with the birds swimming about it, looked lovely. My thermometer in the sun at 8-30 registered 59 deg., and in the shade 46 deg. Isaac, by my advice, set off before 9 a.m., and

* "Mallet's Northern Antiquities," edited by J. A. Blackwell (*Bohn's Library*).

† "Chips from a German Workshop," by Max Müller. Longmans, Green, & Co., London. 1867.

‡ "The Literature and Romance of Northern Europe, constituting a complete history of the literature of Sweden, Norway, Denmark, and Iceland," by William and Mary Howitt. (2 vols.) Publishers: Colburn & Co., London. 1852.

the last I saw of him and his companion was as they left Thingvalla Church, with the intention of seeing the Geysirs, and mounting to the summit of Hekla! They got to *Krisuvik* (in the south-west), as Isaac afterwards sent me some sulphur he had got from that place. I examined the block of vesicular lava in the churchyard, the marks on the east face of which the natives say were used, in olden times, as a standard of dimension by which the measures in common use in the island were regulated. At the national meeting of the *Althing* many a bale of cloth would be bought and sold; and, in case of dispute between buyer and seller, here was the stone to decide differences. After taking another look at the Thingstead, and its surroundings, we remounted, crossing the Oxará River, and climbed up the pathway in the rift to the plateau above. From there is an excellent view of *Thingvallavatn*. It is a fine sheet of water, about 25 miles in circumference; in the middle of it rise three or four small black islands destitute of vegetation. These and the surrounding ranges of barren hills were deeply shaded in tones, and when we saw them seamed with fresh-fallen snow, were reflected on the glassy surface of the blue water; and beyond (looking south) towered the rugged form of *Hengil*, behind which are white peaks of distant mountains, so far away that they could not be seen in any southern atmosphere. I walked alongside the rift to where the Oxará River falls over. It was extremely hot work climbing over the moss-grown lava, and avoiding the numerous fissures. The colouring of the autumn leaves was very bright. The views of the valley and snow-clad mountains were really entrancing; some fresh snow had fallen during the night on the higher mountains. The stillness—broken only by the croaking of ravens—made the scenery all the more weird; in character it differs from anything I ever saw before. On resuming our journey in 1893 it seemed wonderful how we had, by moonlight, safely travelled along and over the blocks of lava. To have to cross Mosfell a second time was dreary work, and so it proved when I recrossed it in 1896; the monotony was relieved by nothing else (at long intervals) than a caravan of ponies carrying all sorts of things (of course, *all* transport is made by ponies), deal boards, ropes, shocks of rye or wheat, kegs of corn brandy, snuff, sugar, tobacco, coffee, salt, and soap, everything in fact that was needed for consumption during the near coming winter. In exchange for these commodities the Icelanders export cured cod, raw wool, knitted mittens and stockings, whale blubber, fish oil (sold in England as "cod-liver oil"), fox skins, eider-down, feathers, and "Iceland moss" (*Cetraria Islandica*, or *Lichen Islandicus*), much used in pulmonary complaints as a demulcent. The natives term it *Fjalla-grös*, *i.e.* fell (or hill) grass. I picked some on the high ground; it had a very dark-green leaf, with deeply palmated edges, and looks very like sunburnt, withered dandelion! It is eaten by the people with cream and sugar. I was unable to get reliable figures as to the total annual revenue of the country subsequent to 1884: then it was 863,932 kroner (about £48,000), and was (according to the official year book) derived from: (i.) Land tax, levied on farmers only. (ii.) Cattle tax. (iii.) House tax. (iv.) Income tax. (v.) Sale of property. (vi.) Tax on incomes from other sources. (vii.) Tax on tithes. (viii.) Tax on exports. (ix.) Tax on imports. (x.) Tax on tobacco. (xi.) Post Office revenue. (xii.) Light and harbour dues.

From the *Almanak Thjódvínafélagsins*, which I brought back, I cut out the particulars of Exports and Imports, 1885-1890; in parentheses are shown the English equivalents as given by an Icelandic.

III. VERZLUNARSKYRSLA FYRIR ISLAND 1885-1890.

(Framhald, sjú alman. fyrir árid 1889.)

1. Utfluttar vörur.

	1885	1886	1887	1888	1889	1890
Hross (Horses)tals	2,061	2,663	2,523	1,138	1,147	1,284
Sauðfje (Sheep)..... —	31,542	20,330	15,090	12,885	32,633	35,539
Ull, hvít (White wool).....pd.	1,214,806	1,166,225	1,038,890	893,988	1,075,101	1,203,258
Ull, svart og mislit (Bl. wool) —	122,222	92,910	101,778	84,799	92,242	111,272
Saukjöt (Mutton).....á 224 pd. tn.	6,533	3,205	2,457	3,335	1,817	1,858
Tölg (Tallow).....pd.	127,908	69,902	56,633	40,814	22,864	17,597
Sauðargætur, saltadar (Sheep skins).....tals	36,620	24,614	15,696	24,388	9,370	5,996
Laubskinn (Lambskins)..... —	31,415	15,283	24,099	15,967	10,013	8,698
Sokkar (Stockings).....por	32,074	54,641	47,864	24,809	27,263	17,688
Veflingar (Gloves)..... —	26,133	30,968	6,814	8,136	8,595	22,794
Edardunn (Eider down).....pd.	6,468	6,817	6,252	6,481	7,232	5,666
Fidur (Feathers)..... —	25,173	13,011	11,044	14,397	13,066	8,203
Bein (Bones)..... —	12,689	650	11,043	2,875	30,468	237
Rjúpur (Ptarmagass).....tals	6,735	8,116	11,867	16,394	41,336	69,235
Saltfiskur stór (Cod).....skpd.	17,789	26,118	32,876	46,793	33,111	24,711
Söltud ísa (Haddock) og smáfiskur (Cod, small)..... —	12,563	13,558	13,356	13,859	26,117	28,126
Hárfiskur (Dry cod)..... —	612	786	403	750	145	233
Söltud hrogu (Salt Roe).....tn.	422	552	844	524	492	666
Sundmagar bertir.....pd.	19,437	39,451	53,965	82,509	71,552	20,761
Lax, saltadar (Salmon)..... —	77,898	59,449	39,866	10,497	4,767	9,848
Lysi.....á 210 pd. tn.	12,350	10,070	4,986	6,475	11,627	8,555
Sild, söltud (Herring).....tn.	29,491	11,298	3,346	1,000	4,176	4,153
Tönskinn (Foxskins).....tals.	241	138	227	230	105	203

* 101½ Danish pds. = 112 English pounds.

2. Innfluttar vörur.

	1885	1886	1887	1888	1889	1890
Rugur (Rye).....á 209 pd. tn.	21,476	24,589	23,123	23,652	22,442	17,835
Rúgmjöl (Rye meal)..... —	10,779	9,576	10,809	14,475	13,882	14,581
Bankabygg (Peeled Barley).....á 224 pd. tn.	9,722	9,278	9,672	9,887	9,507	9,397
Baunir (Peas)..... —	3,074	2,887	2,467	2,618	2,730	2,474
Hveitímjöl og overh. mjöl (Flour).....á 200 pd. tn.	6,854	5,928	5,284	5,552	5,524	6,639
Hrisgrjón (Rice).....sekkir	6,470	5,958	5,949	6,716	6,146	6,510
Hafrar (Oats) og bygg (barley).....á 200 pd. tn.	568	509	524	471	520	573
Adrar korntegundir verd í krónum	134,137	27,629	16,214	19,117	25,414	19,339
Braud alls (all kind of Bread) —	141,218	80,427	84,685	101,162	89,806	93,284
Kaffibaumir (Coffee).....pd.	600,603	441,311	357,605	326,455	351,982	302,309
Kaffirót (Chicory)..... —	211,584	184,023	217,729	196,280	248,026	145,009
Sykur allur (all kind of Sugar) —	1,276,654	1,009,287	1,045,915	1,062,304	1,202,274	1,495,918
Tóbak alls (Tobacco)..... —	145,085	120,753	133,726	?	?	102,831
Brennivín og vínaúci (Com. Brandy).....ptt.	250,562	165,517	149,896	187,379	191,635	259,366
Önnur vínaúci (Wines)..... —	72,234	26,901	24,631	?	?	?
Ój allskonar (Beer)..... —	106,126	43,537	60,474	63,752	79,105	117,115
Smjör (Butter).....pd.	62,609	57,256	28,169	81,357	64,411	74,364
Salt.....tn.	41,357	39,452	61,098	87,885	91,563	61,290
Steinkol (Coals).....skpd.	23,083	24,666	27,233	23,442	31,268	33,250
Steinölja (Oil).....ptt.	304,238	185,938	219,084	272,038	274,415	277,937
Ljárn (Seythes).....tals	12,410	8,154	12,035	kr. 17,303	kr. 17,397	kr. 19,718
Járn og stál (Iron and steel)..... —	119,871	77,487	79,167	86,282	116,598	124,020
Bord 12 feta (Planks).....tals	114,745	52,088	32,243	61,083	153,205	243,396
Járnvörur (Iron wares).....f kr.	204,260	116,441	111,428	155,963	197,724	242,888
Ljerept, klædi og annar ullvefnadar (Flax, Prints, Twills, Dresses, etc.)..... —	382,491	221,018	274,461	407,065	514,887	563,389
Sápa (Soap)..... —	30,305	25,685	26,865	32,375	30,407	30,174

Sir George Steuart Mackenzie, in his most interesting and exhaustive work on Iceland,* gives particulars of the prices of Icelandic produce in the year 1810, and details regarding the commerce of the island. The numerous illustrations, maps, sections, and sketches in the book enable the traveller of to-day to see how very little the country altered during the nineteenth century. One of Sir George's companions on his trip was Sir Henry Holland, Bart., whose contributions to the volume are most instructive and entertaining. In his charming and graphic autobiography,† Sir Henry gives a short account of the journey made when he was twenty-two years of age—and says: "We saw much more of the island than had been done by any preceding visitors, and from our protracted stay there more of its inhabitants, I believe, than most of those who have since followed us."

Sixty-one years later he re-visited the country, and "revived," as he says, "old memories." He noticed various progressive changes, the result of more frequent intercourse with the Continent of Europe. He adds: "Its people are well worthy of study." Sir Henry, who was born at Knutsford (Cheshire), on the 27th of October, 1788, and died on the 27th of October, 1873, was a cousin of Mrs. Gaskell, the well-known authoress.

In the particulars of exports (Icel., *uffluttarr vömr*), given on page 233, fox skins are mentioned as one of the exports, and you see it printed above as *tóuskin*: these are the skins of the Arctic or blue fox, who has a very bushy tail: when he stalks sea-fowl he walks backwards with his tail towards the birds, who mistake it for one of themselves, and only find out their mistake when Reynard turns sharply on one of them, and makes a meal of it. Once upon a time, however, a captured sea bird, in the mouth of a fox, exclaimed, "You godless creature, you are never going to eat me without even saying grace!" Reynard, abashed, folded his paws, turned up his eyes, and opened his mouth: out flew the bird. "Bother!" said the fox: "henceforth I shall only say grace *after* meals!"

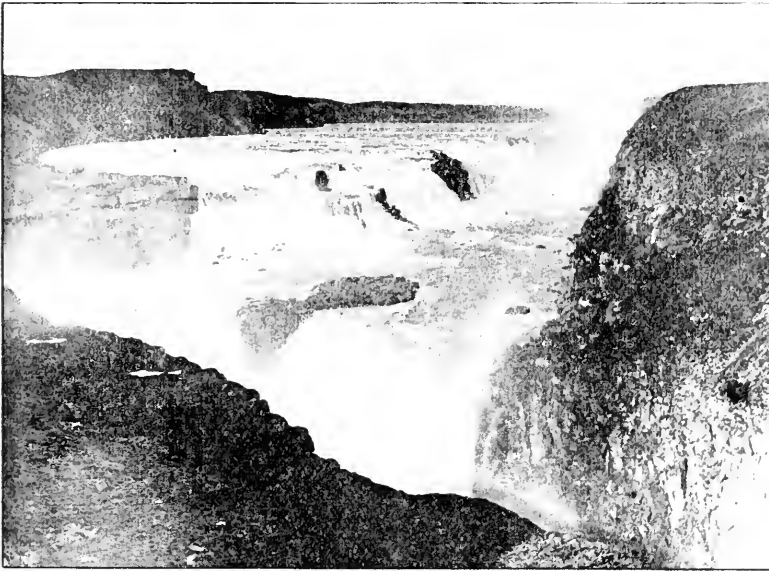
After snow showers the effect of the rainbow in the clear atmosphere was very beautiful. The Icelandic for rainbow is *Regubogi Nykundur* (or Bow of Old Nick), also called *Fridarbogi* (i.e., the bow of peace), originally a title of Odin. *Nykr* (Icel.) is a water goblin, the same word as the German "Nix," or water fairy. As we get near the capital, in 1893, the *Snaefells Jökull* (with a fresh coating of snow) looked lovely. Without hurrying we reached the hotel by 5 p.m., after a trip that had hitherto be of no kind. The fuchsias, pinks, and geraniums in flower in the windows of the "Hotel Island" gave it quite a home-like appearance. On my return journey from Thingvall to the capital in 1896 we had very damp snowy weather, and the recently-constructed road was very soft and tiring for the ponies to travel over. It was curious to see the navvies sitting on low stools, breaking the lava blocks that formed the surface of the road. At this late season there were numbers of curlew, *rýppe* (Icelandic grouse or ptarmigan), and plovers to be seen,

* "Travels in Iceland," by Sir George Steuart Mackenzie, Bart. Published in Edinburgh, by Constable, 1812.

† "Recollections of Past Life," by Sir Henry Holland, Bart., F.R.S., D.C.L. Longmans, Green, & Co., London. 1872.

but the trumpeter swans (*Olor Buccinator*) were the most interesting of the birds we saw and heard. They are noted for their loud and sonorous cry, due to complex convolutions of their curved windpipes. F. Marion Crawford says: "There are some sounds one never forgets; for instance, the glorious cry of the trumpeter swans in Iceland, when they pass in full flight overhead in the early morning."*

By the courtesy of Mr. Frederick W. W. Howell, F.R.G.S., I am enabled to show an excellent photograph of one of the greatest waterfalls in Iceland, *Gulfoss*—i.e., Golden Fall. This is on the *Hvita* (White) River, and is not far from the Geysirs. Like all the great cataracts in the island, this is V-shaped, the stream falling from two opposite sides into a deep rift or cleft in the basalt rocks. Each of



[By permission of Mr. F. W. W. Howell.]

GULLFOSS.

the falling bodies of water is about 100 feet wide, and the height of the first is 80 feet. The waters fall (in a series of cascades and rapids) into a basin, where they foam and roar. The basalt walls were, when I visited the fall in October, 1896, covered with masses of ice, formed by the frozen mist arising from the troubled waters. It is not easy at first to ascertain the exit for the impounded stream, the basalt walls on either side so closely approach each other. The way to this fall from the *Geysirs* (cf., Gush) is over a wild barren waste, but the views of Blafell (Blue Mountain), with its steep sides and flattened top, and Lángjökull (Long Ice Mountain), with its white snowfields relieved by

various sharp peaks of other mountains, make the trip full of interest and beauty.

Siggi, though smaller in stature than the majority of Icelanders, proved a very good guide, and kept the ponies well together and on the go. As to physique generally, the Icelandic face is rather round or square than oval; the forehead often rises high, and the cheek bones stand out prominently, while the cheeks fall in. The eye is, as a rule, hard and cold; the Icelanders are very much given to staring, and most—even of the "gentler sex"—have a frown; but in no single instance during my visits to Iceland or Faröes did I see women with the prominent projecting long front teeth that are now so common in the British Isles, and cause the owners when they smile to exhibit their gums, reminding foreigners of the jaws of carnivora. *Mar O'Rell*, in "John Bull and His Island," writing of "*Des Femmes Anglaises*," says: "Their teeth are long, and protruding, and when they laugh they show their gums like a rhinoceros." The complexion of the inhabitants of *Ultima Thule* is of the fresh pink and white; its delicacy subjects it to various infirmities, especially to freckles; much exposure to the frightful weather they have to encounter converts these tints to an unseemly brick-dust red. In early middle age the peasantry have wrinkled foreheads and pallid faces; squints and prominent eyeballs are common. The feet are large, like those of English folk, and very flat, so that they are particularly fitted for the only manly sport of the natives besides skating and shooting—that is, wrestling. Their gait is ungraceful and shambling, and the tread is heavy; and, owing to the almost universal use of the skin slipper, the wearers wobble and waddle along. The women are hard-working, patient, dutiful, sober, and (generally) clean—superior to the men in every respect. In the persons, habits, and customs of the present inhabitants we are furnished with a picture of those exhibited by their Scandinavian ancestors, and the few innovations that have been introduced by these islanders are not to be met with except around the "*faktoris*." The language, dress, and mode of life have never varied during a period of ten centuries. Accustomed from their earliest years to hear the character of their forefathers, and remembering the refuge which Iceland afforded to the sciences when Europe was barbarian and ignorant, the Icelanders naturally possess a high degree of *national* feeling, and have a strong sense of independence. Here—just as in Spain—the old Gothic sense of equality shows itself, and it is extremely difficult at first for an Englishman to thoroughly realise the absence of class and grade. In youth both sexes are generally very weakly—the necessary consequence of want of proper exercise and good food. The women, as a rule, live longer than the men, who are often obliged to sit long in wet woollen garments after living in close and heated rooms, which is the cause of cutaneous complaints. Like the Irish, the women are very prolific, owing to the large percentage of phosphorus and iodine contained in the cod and other fish which form the constant diet of the people; this strengthens the brain system. Notwithstanding the unusual fertility population increases very slowly, owing to the great mortality amongst the children; out of 1,000 born less than half reach the 14th year.

Intermarriage is so general that nearly all the people are cousins. The islanders are truthful; at the same time they think with the psalmist, "All men are liars," and are the most *distrustful* people I have been amongst. They now have in Iceland nothing (or little) that induces them to invent or design; they are noted for a "canniness" which equals, if it does not exceed, that of the Yankee or Scot. What the majority of Icelanders gain they keep with a most tenacious hold. The common saying that female chastity is found more in a Northern than a Southern climate is a wholly incorrect one; and, if based at all on facts, is based on insufficient ones. The Scandinavian race has never been noted for continence, nor are Northerners generally more moral than Southerners; "feminine" virtue is ruled far more by race than by climate. Marriage ties are easily dissolved; a request for a divorce (a mensa et thoro) by either husband or wife on the ground of incompatibility of temper, if lodged with the Governor of the island, and followed by three years of separation, suffices to enable an Icelandic couple to obtain a degree absolute from the Minister of Justice at Copenhagen. Both parties, after such a decree is made, are at liberty to re-marry. "Chaff" is never used amongst the natives, and when a foreigner uses it, so sensitive are they that great offence is taken. The people are very prejudiced against Sir Richard Burton and other authors, who, instead of unduly praising their character as did Henderson when he wrote at the beginning of the nineteenth century, tell the honest truth about them. Charles G. Lock spent both a summer and winter in the island, and in his book,† which contains many interesting details of their habits, gives numerous facts as to the temperance question in the island.

Both on the way to *Thingvalla*, and to the Geysirs, I noticed the traces of ice-carried stones, and I have no doubt many other of such markings have been covered over by the lava-flow, and are hidden by the vegetation; this shows that at some early period of the world's history the island was ice-bound, as is Greenland at the present day. The Aurora Borealis on the 2nd October, 1893, was the finest I saw, and I strolled about *Reykjavik* for an hour watching it. The Captain and Professor Ólsen called in at the hotel to congratulate me on having had such very fine weather for my trip to the Geysirs, and told me they had never seen a finer Aurora.

October 3rd. Barometer, 29'6. I had arranged with the captain that I should go on board at noon. After breakfast I called on the Postmaster-General, and he put together a packet containing one of each of the Icelandic stamps for a philatelist friend of mine; made a call on the photographer and purchased some photographs; paid Professor Ólsen a visit, as well as Zoëga and Company. Here in 1893 I met Geir Zoëga (whose ancestors were Italians), mentioned by all who have written about Iceland; Lord Dufferin, when he wrote in 1857, mentions him; he was a finely-built and well-preserved man, about 70 years of age in 1893, and has prospered in the world; his son-in-law and nephew are now with him in the business. I saw a good deal of him in 1896 when I was waiting (during the stormy weather) for a steamer to take me home. Subsequently to my first meeting him his

‡ "A dozen honest fellows chaffed each other about their sweethearts."—*Charles Kingsley*.

† "Home of the Eddas." Published by Sampson Low & Co., 1879.

wife had died, and Zoëga had married again, his second choice being a young woman; she was, when I was at his home, in the country, and from what he told me, and all I heard, I fancy he was not very well matched; but the climate is so chilly, all Icelanders must (they think) be mated.

The ponies of Iceland wander where they list, and no one interferes with them until they are required to bear burthens (Icel., *byrdi*), and then they prove to be cheerful and willing; like other beings they sometimes have a craving for liquids!

In 1896 I paid a visit to the Natural History Museum in *Reykjavik*, which contains a well-preserved and most interesting collection of specimens of birds, fish, butterflies, seaweeds, and insects indigenous



Pony Drinking at the Town Pump, Reykjavik. (See description, Vol. XVI. p. 160 of Journal.)

to Iceland. Subsequently my friend, Sigfus Eymundson (who was a *compagnon de voyage* on my outward journey, in 1896) took me to the house of Herr Ben. Gröndal—the founder of the Museum—a most intelligent and gentle man, of more than “three score years and ten,” who spoke English fluently. With this worthy I had a long talk, and on parting with him he was kind enough to present me with a catalogue of the exhibits in the Museum (containing an account of the origin and progress of this scientific collection), and on the cover of the work he wrote—in a neat and elegant hand—a short inscription. The catalogue contains an English translation (Icel., *Ensk Nöfn*) of the names of the exhibits, and I need hardly say I am pleased to have it in my library.

In Iceland you can always tell the house of a Dane by the pictures and engravings of Copenhagen and Danish home scenes on the walls, in addition to the family portraits of King Christian IX. and his late Queen and their family

(including our Queen Alexandra). Comparatively few Icelanders are pipe smokers; most of the men smoke very strong rank cigars. The majority of the churches have been built by subscription, and three or four farms are allotted by the State as an endowment; these are called "*Kirk farms*," and are let to tenants (with the exception of what is called the "home farm," which surrounds the prestr's house, and is cultivated by himself). The prestr receives rents of *Kirk farms* and tithes on live-stock and produce; a house is provided for him, which he is bound to keep, and leave, in good repair. On induction he is presented with one to four cows and half a dozen or two dozen sheep, and on leaving he has to restore these or provide satisfactory substitutes. Taking the ordinary parson's income, he is "passing rich" on £60 a year; often the income does not reach half this sum. Regarding qualification for the sacred office, a man must have attended the Latin School (Icel., *Hins Larda Skóla í Reykjavík*) for a time; in this school there are six classes. The Rector of the school (*Herra Björn M. Olsen*) presented me, in 1896, with a copy of the school's list of members between the years 1846-1896, just prepared by him. It is most interesting, as it tells of the present whereabouts and occupations of most of the former scholars (portraits of Doctor Ol-en and his four predecessors in the post of Rector form a frontispiece to the work). On the cover my friend the Doctor has written: "*Herra mátaflutnings-maðtur J. R. Newby, vinsamlegast, frá—BIRNI M. OLSEN.*" As a rule, students spend one winter in each class, but sometimes a pupil is so far advanced that during a winter session he enters a higher class. The scholars who purpose joining the Church subsequently spend two years at the Theological College; if approved on examination they are appointed to a church by the Bishop, or by the Governor (with the sanction of the Bishop), and these dignitaries can change the cures of the clergy. My friend Sira Matthias used to have a living on the east coast before he was appointed to Akureyri. It is not uncommon for a priest to have to officiate at four or five different places at a considerable distance from each other; in such instances, of course, services are only occasional. The Icelandic Sunday begins at 6 p.m. on Saturday, and ends at the following 6 p.m.; this precession is the case with the days in general; thus Sunday night in Iceland is the Saturday evening of the rest of Europe. I believe Scandinavia is the only part of the Western world in which the people now count in the same way as the folk in the Eastern hemisphere. In Genesis i. 5, we are told the evening and the morning formed the first day—or period before the sun came into being. That some such method of reckoning once existed in our own country seems probable from the fact that "sennight" and "fortnight" are, or recently were, English words in common use. What is the *whole* difference between the religion preached by the clerks of the English churches and a pastor of the Lutheran Church I failed to find out; but I was told that if I read "*The Table Talk of Martin Luther*" I should get the best idea of his teachings; so I looked into the translation of this work (published by H. G. Bohm, in 1857), and I have copied the following extracts on three points, which seem in accord with what is generally taught in our island:—

"*Lawyers.*—Ye that are studying under lawyers, follow not your preceptors in abuses or wrong cases, as if a man could not be a lawyer

unless he practiced such evil. God has not given laws to make out of right wrong, and out of wrong right, as the unchristianlike lawyers do, who study law only for the sake of gain and profit."

"*The Devil*.—No malady comes upon us from God, who is good, and wishes us well; they all emanate from the Devil, who is the cause and author of plagues, fevers, etc."

"*Male and Female*.—Men have broad and large chests, and small narrow hips, and more understanding than the women, who have but small and narrow breasts and broad hips, to the end they should remain at home, sit still, keep house, and bear and bring up children."

History tells us that Martin Luther was personally absolutely free from any prejudices on the subject of monogamy or polygamy.

Anyone interested in the subject of the religions practised in different countries will peruse with pleasure an exhaustive and clever paper, "*The Change of Faith in Iceland, A.D. 1900*."* It consists mostly of extracts from "*The Story of Burnt Njal*"—in my opinion the most fascinating of all the old saws of Iceland—a story that extends from the middle of the ninth to the first years of the eleventh century. The paper commences—so far as time is concerned—at a period when the faith of the Icelanders was heathenism, it traces the steps by which the folk were converted to Christianity, and concludes with a graphic account of the manner in which the new faith was adopted by the inhabitants at the meeting of the *Althing* in A.D. 1000.

In form the newspapers are small broadsheets, there are several journals in *Reykjavik*, *Akureyri*, and *Isafjörd*. These papers give Parliamentary news when the *Althing* is sitting, and no papers in the world display more violent party feeling. Paragraphs appear from time to time on educational, economical, and agricultural topics, as well as about the mails, weather, and fishing, and there are notices of deaths, etc. In deference to the native passion for saws (*sagas*, pron. "surgurs") an interesting tale of travel or fiction is carried through the series—occupying a third of the whole space sometimes. The great feature of our journals—the advertisements—occupy but a small space. In the third column of the second page of the number of the *Thjóðdólfur*, published after the arrival of the mail boat in September, 1893, is a paragraph about the passage of the "Thyra," and it mentions truly what "mickle storms" we experienced; the next paragraph of this newspaper (of which I have a copy), if in an English paper, my friend the Prestr told me, would read thus:—

"The Reverend *Matthias Jochumsson* arrived back from his trip to Chicago by the s.s. 'Thyra,' at Akureyri, on the 19th instant. In a letter to the editor of this paper of the 20th instant he expresses himself very well pleased with his vast journey, stating that he has enjoyed himself very much, only now and then finding the heat very oppressive. According to a general wish among his countrymen in America, he is going to publish an account of his travels, which most certainly will contain much of great and general interest. Every one knows how well able Mr. Matt. is to write both pleasantly and ingeniously.

* By Richard John King, B.A., Exeter College, Oxford. Published in "*The Quarterly Review*," January, 1892.

"We are sure that most of our people sincerely welcome the return of Mr. Matt. to his own country, rejoicing in the fact that the sinister hints on the part of a certain paper, that he would prefer to remain in America, proved groundless, as this, we were all assured, he never would do." When I visited the prestr's eldest son (*Mathiasson*) in his chambers in the college at Copenhagen—where he was studying medicine—at Christmastide, 1899, he showed me the account his father had written of his journey to the U.S.A.

As to "foreign news," under the heading "England" in this paper is an account of the division on the Irish Home Rule Bill. Following the paragraph about the prestr, under the heading of "Shipwreck," is an account of the loss by Herr Gram* of *Dryafjörð* of two vessels, during the great storm. This Danish merchant was one of my fellow-passengers on the return journey, as was his great "chum," Herr Bache (*cf.* A.S., *cuma*, a comer, or comrade). Iceland newspapers are always liable to temporary suspension, for lack of materials, during every alternate winter when *Althing* is not sitting. The Icelanders on the boat derived much amusement from seeing me study their "broadsheets," of which they often get at the settlements or stations where the mail boats call an accumulated batch of fifty and more numbers. The old Norse *when printed*, is not difficult to understand, as I explained on page 129 of Vol. XVI. of the *Journal*. They read their newspapers very carefully, and then cut out the *saga*, and preserve that. No account of Iceland could convey any idea of the people and their character that did not explain—however cursorily—the islanders' prose stories mingled with verses. There are sagas of all sorts; some relate to the doings of very ancient times, and have been handed down from generation to generation, and been tested and proved to be trustworthy records; but the most interesting of the sagas are those that relate to the lives, the quarrels, and the deaths of the best known and most prominent families in the island; these are, without doubt, *true* histories, and form much more interesting and exciting reading than the majority of English novels. Any one who has read the "Saga of Njal" (*i.e.*, *Anglice*, "The Story of *Burnt Njal*," which I mentioned on page 115, Vol. XVI., of *The Journal*), will never forget the chief points of the history; the times, the places, and the dates of the account are so minutely stated. Though the story was probably not written down until maybe a century after the events occurred, it was told and retold at the various meetings of the Parliament, and at many a fireside, by Icelanders who had learnt the events from their forefathers. With reference to this saga (as I have before mentioned), the truest translation is that of Sir George W. Dasent. Few modern authors have written more works than Baring-Gould, and any one interested in the stories of Northern climes should read "Iceland: Its Scenes and Sagas,"† The majority of sagas were originally written for the purpose of oral recitation, and in their purest form describe the life of some hero; the plot is usually most simple, events are described

* See Vol. XVI., p. 156 of "The Journal of the Manchester Geographical Society."

† Smith, Elder & Co., 65, Cornhill, London, 1863.

in order of date, the changeful fortunes of a fight or a storm are told with minuteness, and above all there is an absence of digression or comment, and in the tale there is no intrusion of the narrator's personality. The saga is the same word as our "saw" (saying—akin to Old English *secgan*). Shakespeare wrote—

"His champions are the prophets and apostles,
His weapons holy *saws* of sacred writ."

These sagas grew up in the quieter days which followed after the establishment of Christianity in A.D. 1,000. As S. Baring-Gould, in the preface to his last-named book, says, "The sagas are not mere popular tales, they are downright history." At the beginning of the eleventh century the deeds of the heroes amongst the leading families were carefully cherished by their descendants, and the exploits of the great kings of Norway and Denmark were handed down with reverence from the mouths of those who had fought alongside them. Story-telling was a recognised form of entertainment at all meetings and festivities, and so the tales gradually grew into a regular form; when the saga had been fixed by a generation or two of oral reciters it was written out. Taking the principal sagas relating to Icelanders—of which there are now about forty—they were first written down between 1140 and 1220 on separate scrolls. (I was shown some of these in the Library at *Reykjavik*.) They went through all the different phases which such compositions have to pass in all lands—editing, padding, amplifying, and finally (in the fourteenth century) were garnered in large manuscripts or tomes. Of the authors little or nothing is known: they may be divided into two classes, one who tell of the older generation before Christianity, and those recounting the deeds of the contemporaries of St. Olaf. Pray read a short work, (of less than 200 pages), "Stories from the Northern Sagas,"* many of which tell of Icelandic poets and men of note. It is preceded by a most interesting preface by Professor F. York Powell, who says: "It is in the Books of Kings, in Genesis, in Ruth, in the Arab book of heroes, and the finer parts of the Thousand Nights and One that we find the nearest analogues to the best sagas."

Many ladies have written about *Ultima Thule*: I mentioned in Vol. XVI, page 133, the clever work of Mrs. Alec Tweedie. Probably the most practical and realistic account given by a lady of the scenes and history of the island is that of Miss E. J. Oswald.† Every traveller in Iceland feels—as the authoress remarks—an entrancement during his or her wanderings caused by the saga-lore, and the legends, by the wayside; local traditions and past literature add to the charm of the scenery, so different to that of other lands. I recommend tourists intending to visit the island to study (previous to starting on their travels) Miss Oswald's narrative, and the accounts named in this paper, and not to omit looking at the work of Madame Pfeiffer,‡ which was

* Published by Horace Marshall & Son, London, 1899.

† "By Fell and Fjord." William Blackwood and Sons, Edinburgh and London, 1882.

‡ "Journey to Iceland," by Ida Pfeiffer (from the German, by Charlotte Fenimore Cooper). Richard Bentley, London. 1852.

translated into English in the early fifties; she visited the island in 1845, and gives detailed accounts of the scenes of which she saw so much during her stay, and most candidly expresses her views of the customs and manners of the inhabitants.

"*Laxdæla Saga*"* (i.e., "Story of the Salmundale Folk") one of Messrs. Dent's "Temple Classics," contains translations of some of the grandest stories of the Scandinavian race. Many of my friends who have *not* travelled in Scandinavia have found, they assure me, great pleasure in perusing the accounts of this folk-lore, so terse and pithy—

"In all these Goodman Fact was *very* short, but *pithy*."—*Addison*.

contrasting strongly with the modern novel.

A story of Iceland†—chiefly written for children, as the authoress states—must be absorbed, or imbibed *cum grano salis*. She tells how the French fishing-boats start for Iceland in February, and writes: "The sailors sometimes bring cocks with them in baskets, to tell the time in the morning; for the birds crow at the time of the French dawn from mere force of habit, even though it is light all night long." She concludes her *History* with the remark: "It may be that some of you children that read this story of Iceland may wish to know more of it. Some of you may go there some day, and see the places and the people for yourselves, but there is yet another way of getting to know more about Iceland, and that is by reading the history books"!!

Was the historian thinking of the account written by the head of the noble house of the Blackwoods (when sailing on the "*Foam*," in 1856) of a Hebridean member of the Order of *Galline*? He tells‡ that a cock he shipped at Stornoway shortly before the arrival of the vessel in *Thule* "became quite bewildered on the subject of that meteorological phenomenon called the Dawn of Day. In fact, I doubt whether he ever slept for more than five minutes at a stretch, without waking up in a state of nervous agitation lest it should be cock-crow. At last, when night ceased altogether, his constitution could no longer stand the shock. He crowed once or twice sarcastically, then went melancholy mad: finally, taking a calenture, he cackled loudly (probably of green fields), and, leaping overboard, drowned himself." Mr. Charles Farrer Browne (better known by his *pseudonym*, "Artemus Ward"), had he lived to read Letitia's History, might have styled it "A grate goak."

Lieutenant Arndrup, of the Danish Navy, was, in 1893, one of my fellow-passengers on the return journey round the north coast of the island; he spoke English, and used to go on shore with me at the various stations. He brought on board with him a bouquet which a lady had given him. I noted down such of the flowers as I recognised; there were red lilies, mignonette, violas, geraniums, nemophila, daisies, roses, fuchsias, stocks, and verbenas. We set sail on 3rd October, 1893, from *Reykjavik* harbour at 7-30 p.m., in fine weather, on our voyage northward *en route* to the east coast of the island.

* "*Laxdæla Saga*." Translated from the Icelandic by Muriel A. C. Press. Published by J. M. Dent and Co., London, 1900.

† "The Story of Iceland," by Letitia M. Maccoll. Rivingtons, Waterloo Place, London. 1857.

‡ Page 27 of "Letters from High Latitudes." John Murray, Albemarle Street, London. 1857.

THE YORKSHIRE DALES: WHARFEDALE (RIEVAULX ABBEY),
AND RYEDALE.

By Mr. J. J. GLEAVE.

[Address to the Manchester Geographical Society, October 23rd, 1900.]

IN speaking to the members of a Geographical Society, it may be useful to preface my notes with a word or two respecting this premier County of Yorkshire. It exceeds by some 600 square miles the combined areas of Lincolnshire and Devonshire, which rank next to it. In population it is inferior only to Lancashire and the Metropolitan County of Middlesex. Its outline is an irregular quadrangle, marked out by great natural boundaries. Its whole east side is washed by the German Ocean; on the north, the Tees separates it from Durham; on the south, the Humber divides it from Lincoln; whilst a range of hills on the west almost exactly define its limits towards Westmorland and Lancashire.

Professor Phillips, whose monumental work on the geology of Yorkshire still retains its pre-eminence, says:—

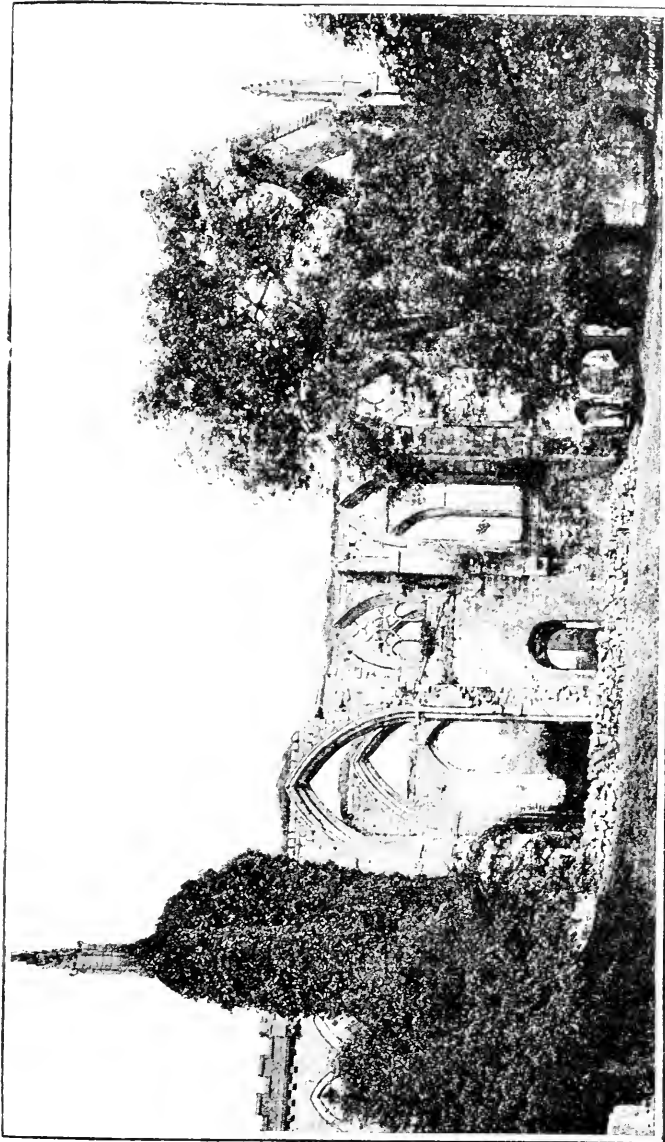
“The main external features of Yorkshire are explicable on the simplest possible theory; viz., that of the long-continued action of the agitated sea on the strata which composed its bed, at the time when this bed was raised to constitute land. These strata of their various degrees of consolidation and peculiarities of position offered unequal resistance to the waves, and have been unequally wasted; the softer strata suffering most waste, have left the greatest hollows—the red marls and the blue lias having been excavated in the Vale of York, the Kemmeridge clays in the Vale of Pickering, the limestone shales in Craven, and the tertiary sands in Holderness (district of Hull), while harder masses of chalk constitute the Wolds, oolites and sandstones for the Moorlands of Whitby, still firmer sandstones and limestones with slaty and basaltic masses constitute the higher region of the west.”

It is through a dale of the latter formation I will first conduct you.

BOLTON WOODS.

Bolton Abbey, or rather Priory, is so well known by the art of Turner and Cox, and the ubiquitous camera, that description is almost needless. Familiar as we are by counterfeit presentment with this lovely ruin, there is an impression and influence, which man cannot give, steals over us when we visit it in leisurely mood, sitting on the sweet turf, and giving wings to our imagination. Memory travels down the ages, full of tender forgetfulness of many corruptions of early days, and, we trust, thankfulness for the numerous beneficent and holy deeds done in these fair spots of our native land. We lovers of books and true learning think gently of those ardent scribes who, in the *Scriptoria* of their abbeys, painfully, conscientiously, and most beautifully wrote the old manuscripts.

As we recline upon the mossy graves in this ideal God's acre, the air is songful with thrush and blackbird, and the river murmurs



F. FRITH & Co.

BOLTON ABBEY — SOUTH TRANSEPT.

From Photograph by

a sweet lullaby as it flows round in graceful curve. Around us are ancient groves of oak and thorn, soon to be snowy white. That great lover of antiquity, Dr. Whitaker, drew comparison with the other

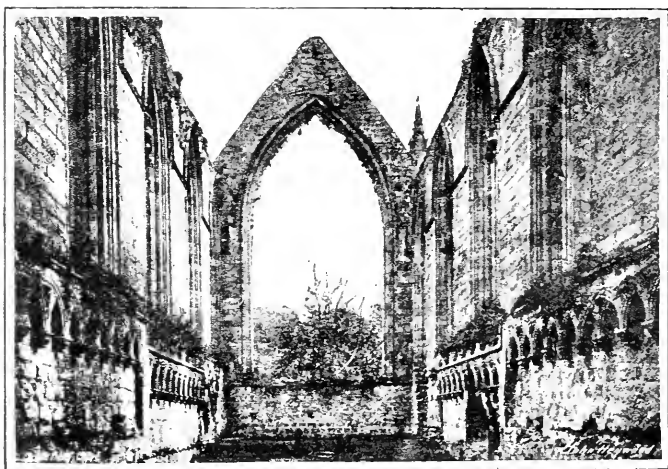
noted abbeys of England in favour of Bolton, and we think he is right. Here is every combination for a peerless picture—an ample green foreground, wood and water in matchless gracefulness, and the bounding fells for background, with

“ Bolton’s old monastic pile ”

in its midst.

Tradition runs that it was amongst these grassy mounds that the “ milk-white doe ” bounded on Sabbath mornings over the budding brooms of Rylstone Fells, to seek a resting-place upon the green sod beneath which lay her devoted mistress, Emily Norton.

From the Priory to the Strid are some of the most beautiful river scenes in England. In places the Wharfe, crystal and pure, flows over enamelled pebbles; in others it is a “ horned flood,” with wooded islets stemming its course.



From Photograph by

F. FRITH & Co.

BOLTON ABBEY CHOIR—EAST.

As we sit on the banks of the crystal Wharfe, we note that here its waters are not that translucent colour they are higher up the dale; and here they are churned into milky tint, for this is the famous “ Strid.”

“ The striding place is called the Strid—
A name which it bore of yore;
A thousand years it has borne that name,
And will a thousand more.”

The morning is lovely—enough grey sky to make the blue spaces between all the more intense, and the white clouds more pearly. The sun shines in fleckened light and shade amongst the tender green of springtime, and upon the whitened rocks—all confused and fissured and hollowed out into circular pot-holes by pebbles and winter floods. Above the thunderous roar of the tortuous river, forced through a twisted, rocky channel four or five feet wide, are heard

the mellow fluting of the blackbird and the harsh note of the starling ("shepsters" the country folk call these beautiful birds, with their flossy sheen of shot green and black). Glancing up a slope under the verdurous trees is an apocalypse of heaven—a bank of wild hyacinths one blaze of purple blue.

On a May morning it is entrancing sitting here—so peaceful and calm all else than the madly-rushing stream; the air is crisp and songful; the woods are varied in their spring tint, for the close and loving observer cannot fail to be struck with the different colours, the



From Photograph by

THE STRID.

F. FRITH & Co.

tints of the earliest leaves differing from later ones. Looking up the river a few feet above the falls, there is a fascination about the waters which rush, snowy white, over the rocks and assume a rich creamy colour in their whirling between and under the scooped-out stones.

This is the spot where, tradition says, the Boy of Egremond, with hound in leash, while hunting in these woods (then the haunt of the wild boar) came up and leapt across; but the hound held back, and his master was in "Wharfe's abysses drowned." The story of its

sequel, which led to the building of Bolton Priory, is well known. There is a double charm about this dale, which may, without much exaggeration, be called the English Grindelwald, in its own inherent beauty and grandeur, and in its legendary and historic lore.

Following the river for a little over a mile, obtaining *en route* magnificent glimpses of river, wood, and fell, we reach the grey old ruin, Barden Tower. Here we stand on solid ground of history, and fancy travels back some four hundred years, to the time of its then occupant, the good "Shepherd Lord," who, shunning the pomp and glitter of courts, sought the aid and companionship of the monks of Bolton in his study of the starry skies. At the age of 60 years this simply-living lord was called upon by his country to lead a troop of sturdy, milk-fed dalesmen to Flodden's tragic field. There is extant a quaint old metrical version of Flodden Field which is mainly interesting for its mention of Craven localities, many of the hamlets therein noted having to-day much of its old-world character. This grim old tower was roofed and partially furnished about a hundred years ago. There is little or no beauty about the stern old fortalice; but its memories and its surroundings, and its noble show of ash and oak, especially the former, make it a most interesting and picturesque ruin. The farmer who resides here can trace a family tie in this holding for hundreds of years; if we were to say how many our readers might smile incredulously. Removing vans are unknown in these parts; a man's house is his home, around which cling the tendrils and roots of his life.

If we step into the old farm kitchen, we note its time-blackened solid-oak beams, with its boarded ceiling (for this portion is one storey only). An oriel window, ample in its diamond-paned expanse, lets in a flood of light upon the old oak settee and plate shelf, on which are rows of blue and white china. Beside the settee is a good roaring fire, winter or summer alike—emblematic of Yorkshire hospitality. In a corner is an old balbert of the 15th century, and an old key possibly more ancient. It is a ponderous "clef," weight enough for a small anchor, and outside is a relic of, perchance, earlier than Saxon times, a quern—*i.e.*, an hand corn-mill.

Behind the farmhouse, and passing the chapel, we ascend the old well-worn grit stone steps which belong to this Tudor dwelling. Beneath the lambs are frisking; above the swifts are wheeling high in the air, with that peculiar cry common to the swallow tribe; below lie the ancient woods through which the river flows; beyond, the bounding fells, of richest russet; and to the right (out of sight from this point) the rounded heathery hill known as Bolton Deer-Park, where still are seen a herd of the now scarce red deer!

WHARFEDALE.

We stayed at a farm on sloping ground, a couple of fields away from the road and within sound of the murmuring Wharfe, which fully justifies its old Saxon name "Gwerf"—swift. How Mrs. Hemans' beautiful lines on rural England seem to fit these quiet spots:—"The cottage homes of England, how beautiful they stand," etc. The orchard, in a carpet of the richest greensward, is one blush of pale

rose and white apple bloom as we approach the house. The green, sloping fields are dotted with native oaks and ashes of noble proportions.

The air is resonant with the low undertones of calves and lambs, and flooded with the mellow flutings of blackbirds in the neighbouring wood.

The small flower-garden in front bears abundant evidence of a true English farmer's wife's good taste in neatly-kept beds of old-fashioned flowers and herbs. The wood just spoken of is a perfect paradise. The stream or beck which waters it comes from the fells, only a short distance away, following a crease in the moorland, which deepens into a V-shaped ghyll. This ghyll is well wooded throughout. Surely if ever fauns and satyrs and other mythical creatures lived, they must be found here! Instead of dryads we find lovely oak ferns in abundance, and instead of other fairy folk we see the exquisitely lovely and delicate flowers of the wood sorrel and wood anemones.

As the walk twists about we come to the dry bed of the stream—full enough in heavy flood—with mossy boulders rich in colour. In front of us is the winding beck, scarcely audible; on either side of the steeply-rising ground thickly grown with hazel coppice and great timber trees, not the shapely giants of some well-kept park, but gaunt of limb and weird of form, often ivy-clad, and sometimes ivy-strangled. In the middle distance is a pretty cascade which falls into a silent pool, and beyond this a single arched bridge draped with moss and ivy. This bridge carries the main road across this lovely glen. You may see the speckled wagtail having a rare feast upon the flies incident to flowing water, and the lovely zephyr-winged dragon-fly poised in the sunbeams, and hear the blackbird's mellow piping. Across the diapason of music comes at intervals the two-syllable note of "the bird of the wandering voice"—the cuckoo.

We may ascend the dale by river and field-path; the river pastures ablaze with primrose and cowslip. We pass ancient barns thatched—or "thacked," as they call it here—with ling. The open vale now contracts for a short space, which on either bank is clothed with wood. There is a fisherman's path on either side of the Wharfe, which is here crossed by "hippings" or stepping-stones. The river, too, contracts; and in its picturesque ruggedness of rock and wood reminds one of the Fairy Glen, in Wales.

Having crossed these "hippings," we follow the river, and, after traversing several meadows beyond the wood, we find ourselves upon the high road in the village of Appletreewick. There is in this old-world village a quaint stone house of most antique appearance, apparently three or four centuries old. It is locally called "Proud Beggarman Scorn Hall"—a word, one would think, surely coined by some village Ruskin.

If we had time we might visit, over the green hill close by, a spot suggesting by its very name its Norse origin, but a spot and a period dear to all dreamy, poetic souls—Troller's Ghyll. It is a narrow chasm which parts the limestone cliffs, through which flows dreamily a tiny streamlet. We dare not indicate the spot too minutely, lest the lovely gems of wild flowers, ferns, and moss should be ruthlessly carried off. There is a lovely pink specimen of moss flower, seen there by the writer a dozen years ago, and cherished ever since in memory.

We will now go on to Burnsall. The road winds pleasantly about, passing many a pleasant farmstead with its ancestral trees, and the green hills of the limestone round us, beyond which the russet-clad fells appear. It is indeed a lovely valley, and its native poet, who lives in this part, calls it an English Arcadia. Not having been in Greece, we cannot say if this is a correct description, but certainly its green fertility, browsed by innumerable sheep and cattle, reminds us strongly of the Swiss Grindelwald.

We now have a view of this peaceful, picturesque village—a three-arched stone bridge, near which is a spacious green with its may-pole in centre, the pellucid stream, margined by silvery-white pebbles, laves the greensward.

Above the verdant meads rise into craggy abruptness the millstone-grit, masses of rock which crown with fastastic diadem the crest of Barden Fell—by name Simon's Seat—from which York Minster can be descried on a clear day. Along the one short street we find the modest church amidst its well-kept churchyard, and, close by, a typical rectory. Mingling with man's voice of praise is the river's ceaseless monotone, and from a thousand floral chalices breathe a holy incense, and from a hundred feathered throats far sweeter music steals than from many a Gothic shrine!

UPPER WHARFEDALE.

This district is best reached from Skipton, by public conveyance, past classic Rylstone, and Norton Tower (or rather its remains), Cracoe, and Burnsall. Readers of Wordsworth will at once remember that this is the locale of the most pathetic parts of his "White Doe of Rylstone."

We start from a little farmhouse beside the river, three miles below Burnsall, our destination being Kilnsey Sear, ten miles distant. For the first three miles the road is of a gradual ascent, with moors to our left, while on the right, below us, the river Wharfe meanders through the greenest of pastures, around tree-bossed hills, and past many an ancient farmstead. Some of these dale-folk claim the same holding for hundreds of years, and almost all for several generations. Despite the ever-recurring plea of agricultural depression, peace, plenty, and contentment seem to reign. As we begin the descent about half a mile from Burnsall, we get a glimpse of this, one of the sweetest Craven villages.

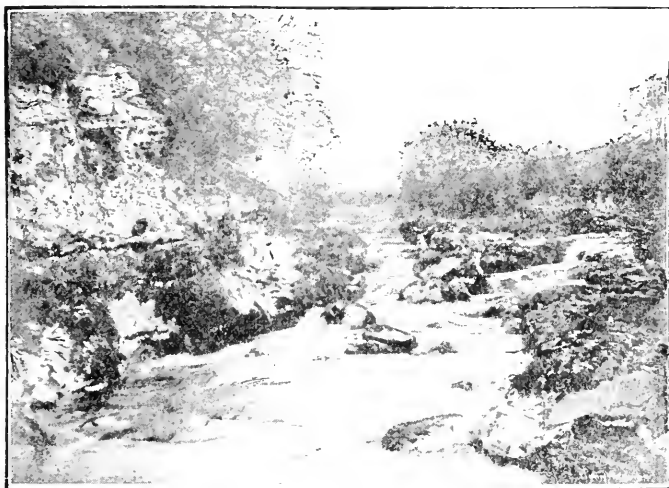
After leaving this last village, we soon note that we have left the grit and entered a limestone country, for we find less timber trees and fewer plantations, though still fine specimens of both at wider intervals than we noted down the dale. The hills are smooth, round-topped, of a sweet green herbage, which are nibbled by more sheep than the grit pastures. We pass through or near old historic villages, little changed since an old ballad of 15th or 16th century, which describes in quaint rhyme the bloody fight on Flodden Field.

"From Linton to Long Addingham,
And all that Craven's coasts did till,
They with the lusty Clifford came."

To our left is Threshfield, at whose grammar school Dr. Whitaker, the antiquarian, was educated. Grassington we pass upon a hillside,

to our right beyond the river. At about the seventh mile stone we pass the fringe of the grounds of Netherside Hall (which is now occupied by some one engaged in trade), and never shall we forget the perfume which met us here. It was a delicious sensation not to be described, but felt. Thorns, snowy white, bending beneath their load of bloom, others a mass of carmine, like blushing bride, while under forest trees we descried other thorns of the richest crimson. We got the best view of the hall from the other side, when we saw well its many gables and numerous windows.

The dale now widens, and we ascended. The river flows in sinuous folds amongst the gold-enamelled meadows of a flat valley. Here are few cattle but innumerable sheep and lambs. We note a characteristic and typical sight in these parts, great flocks of sheep going to or returning from a sheep-washing in the crystal Wharfe, the mingled



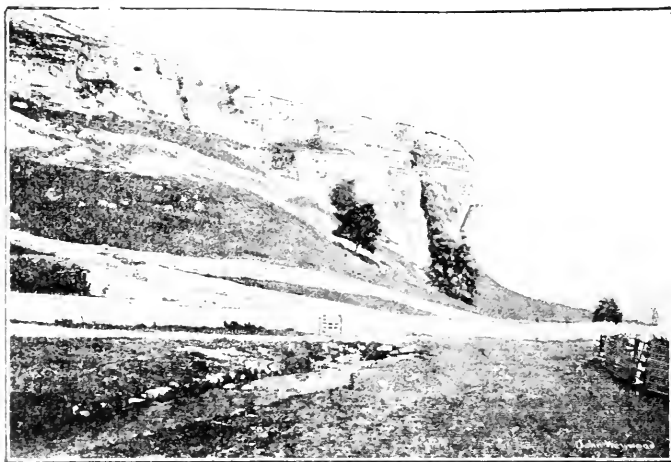
GHAISTRILL FORCE, OR TROUTBECK FALLS.

bleating of ewes and lambs, the barking, restless collie, harassing the foot-sore unkempt sheep, whose fleeces hang in tatters, the tall dalesman farmer on horseback behind, and the whole in a cloud of fine white dust.

One of the great charms of these dales is that the roads wind about in continuous ascent or descent, revealing fresh beauties at each turn. The river, no less than the hills, tells us we are in a limestone district. There are fewer rocks to impede its course, and there are no longer huge mossy rounded boulders of grit. In several places its level but swift course is impeded and broken up by contractions and depressions in its limestone bed; at these places it foams betwixt narrow riven channels as at Ghaistrill Strid. These names reveal early British or Saxon times. "Strid" being derived from a word meaning *strife*.

We now reach Kilnsey, a small village of grey stone houses. Dr. Whitaker, the learned historian, of Craven, says the name is derived from "Kyle" (chilly) and "a" or "ea" (water), which is very descriptive, not only from the clear small burn which flows parallel to its base, but also from the cold springs, which issue from the foot of the cliff. This scar, one of the seven wonders of Yorkshire, extends about half a mile. Its height is nearly 200 feet, and overhangs for a considerable portion over 40 feet. It is finely weathered, and coloured by lichens and ivy. It has evidently faced an inland sea. Jackdaws find a home in its crannies, and many a lovely Alpine gem grows at its foot, rivalling in beauty and form, and loveliness of colour those of the glacier valleys of Switzerland.

A velvety green turf slopes up to the base of this cliff, of the same angle at which falling stones remain stationary. This slope is the



KILNSEY SCAR.

grass-covered talus or screes, which the weather has loosened from above. Numerous swifts whirl and dance with that shrill whistle peculiar to the swallow tribe, far below the summit of this beetling rock, giving additional impressiveness to the scene. There is a fine echo here.

Here, beneath this scar, whilst eating our frugal meal, we drank in all that ineffable influence which peaceful pastoral scenes and mountain air seem to breathe.

"The beauteous forms
Through long absence, have not been to me
As is the landscape to a blind man's eye.
But oft in lonely rooms, and 'mid the din
Of towns and cities, I have owed to them
In hours of weariness, emotions sweet,
Felt in the blood, and felt along the heart
And passing even into my purer mind,
With tranquil restoration—feelings too
Of unremembered pleasure."

Kilnsey is named in Domesday Book, being spelled *Chilesie*.

There is one ruin of mediæval times still standing. It is part of the old Manor House, once decorated with rich carvings and plaster mouldings. It is now a hay barn. It was formerly the Hall of the Wade family. It formerly joined the Court House, one of the numerous monastic judicial establishments of Fountain's Abbey. The sheep moors, once browsed by immense flocks, belonging to Fountain's Abbey, extend for miles towards Malham.

The learned Dr. Whitaker gives us a pleasing glimpse of a sheep shearing in those days. "The bleatings of the sheep, the echoes of the overhanging rocks, the picturesque habits of the monks, the uncouth dress (the dark robes of the Benedictines), the long beards and cheerful countenances of the shepherds, the bustle of the morning and the good cheer of the evening, would altogether form a picture and a concert to which nothing in modern appearances or living manners can be supposed to form any parallel. Yet, even at present, a large sheep-shearing is one of the most animating and cheerful scenes with which I am acquainted." Sir Walter Scott says of this order (the Benedictines), "they were of the most gentlemanly rank and left more permanent works of progress and utility than any others."

A short distance higher up the dale it divides into two valleys. This is the "fork of Amerdale" of Wordsworth's poem, "White Doe of Rylstone." The left-hand dale is Littondale, watered by the Skirfare; the other is Kettlewelldale, with a small town of the same name. There is a local tradition that many years ago the houses of Kettlewell were filled window deep by pebbles carried in by a great flood, caused by a water-spout higher up Wharfedale. In one of the wildest parts of this district there is a small hamlet, from which came the hero in Chaucer's "Rive's Tale" in his *Canterbury Tales*. The reader will see that this district is redolent in interest, historic, poetic, and natural beauty. We returned by the other side of the river, which we crossed at Conistone Bridge. Here we found a small scattering of grey stone houses with no regard for order, but often of fine artistic effect. We then passed through the famous Grass woods, almost rivalling in fame Bolton Woods. These are the chosen home of innumerable flowers, particularly of the lily of the valley. By the customary courtesy, kindness, and forethought of the Duke of Devonshire, these woods are open to the public, and the road well kept. This wood was the scene of a dreadful tragedy in the last century, for particulars of which see Dr. Dixon's "Tales and Traditions of the Craven Dales." The body of the murderer was gibbeted and dropped away piece-meal. It is said Tom Lee was the last man gibbeted in England.

We passed Burnsall on the opposite side of the river to the one taken in the morning, and have a bird's-eye view from an elevated narrow road.

A green steep grassy hill slopes to the river, across which a fine church, with massive tower and model parsonage, are immediately before us; to the left we saw the new fine bridge built to replace one washed away by the floods in 1883. To the extreme right the river flows darkly beneath a frowning scar, called Loup Scar or Wolf's Crag, while beyond is the finely-contoured grit-stone Burnsall Fell.

In closing, we have a desire that more Manchester people will go and see these charming dales. There is no lack of accommodation. Most of the farms feed and house the tourist well. There are snug village inns, where the old oak settles and "kists" are bees'-waxed, and the brass handles thereof polished to desperation.



LOUP SCAR.

Those who long for more modern hotels will find such. From the terrace of the Fell House Hotel glorious views are to be seen.

RIEVAULX ABBEY.

This abbey (called Rivas by the natives) is some twenty miles beyond York as the crow flies, in the North Riding of Yorkshire. It is

much farther by the circuitous route taken by the North-Eastern Railway, and the journey would be tedious but for the comfort of the carriages and the rich country traversed by the line. Bolton Abbey, in Wharfedale, has always appeared to me to be peerless for situation and perfect in all the features which go to make up a picture—wood, water, and bounding fells for background. I would unhesitatingly place Rievaulx Abbey next in point of beauty and interest. In several features this abbey surpasses Bolton Priory. It is more extensive and of more imposing and beautiful architecture.

Leaving Leeds by the North-Eastern Railway train, we soon quit the smoke and grime of this prosperous northern city, and find that nature has room to spread herself at large. Her ample skirts lie in broad fields, brocaded now in richly-tinted pattern of white daisies and golden buttercups, pale hawthorn, and rosy ragged robin.

It is the richest time of the year, the beginning of June, and besides the beauty of the earth there is the wonderful glory of the cloudland, which is especially noticeable in regions such as this rich vale of York.

HELMSLEY.

Helmsley is our destination. This little rural town of about 1,500 inhabitants is a very model of cleanliness and quaintness. Its neat market square or place is entered by three roads. In the centre stands a handsome stone monument of beautiful architecture, a Gothic shrine enclosing a full-length marble figure of the present Earl Feversham's father, erected some 30 years ago. The church, the most imposing of the Ryedale churches, is a neat structure, carefully restored in the sixties. There are many antiquities in and around it. The castle ruins, upon a wooded knoll, have a very imposing appearance, and are intensely interesting to the antiquary. They carry us back to the Norman times. The keep of solid and good quarried stone is very impressive. Its most notable owner was a Walter L'Espee, who fought successfully in the Battle of the Standard. It was this warrior knight who built and endowed Rievaulx Abbey in 1131. He afterwards became its Abbot. Helmsley Castle was built by one De Ros whilst Yorkshire still wept the Norman Conquest.

Helmsley has a few ancient houses covered with thatch, though the majority are covered with red fluted tiles. A stream runs through its main street. There are a market cross and several old comfortable inns in the square.

THE TERRACE.

Two miles from Helmsley we find a wicket gate by the side of the road with notice board indicating the way to the Abbey and terrace. Following instructions, we ring the somewhat mysterious bell, for there is neither house nor lodge within sight. There appears a middle-aged dame, as matter-of-fact looking as the scene is poetic, under whose guidance we visit the famous terrace, a piece of exquisite lawn, over half a mile in length, forming an irregular curve. It is planted on each side with excellent judgment as to choice of trees.

Through openings we obtain, as we slowly proceed, charming glimpses of the Abbey seated in the vale below. At either end of this noble terrace, which art has skilfully fashioned from a natural mound, is placed a Greek pavilion and a Tuscan temple. The latter contains some magnificent mural frescoes, painted by a distinguished Italian, representative of the salient features of Greek mythology. On the coved ceiling is depicted in all the wealth of colour and wonderful realism Apollo as sun god in his chariot drawn by three fiery chargers. Aurora, the Goddess of the Morning, is opening the aerial portals of the dawn.

THE ABBEY.

The first view we get of the Abbey is not soon to be forgotten. There, below the steep declivity, embosomed by wooded hills, in as cosy a nest as ever monk could wish, stands the ruin, lovely and beautiful in its desolation. Its name indicates its position, viz., the Abbey of the Rye Valley (Valle, Vaulx, or Vaux). From one point of view we see the choir, which is entire, being one of the most perfect parts in this interesting ruin. It is of light colour, almost gleaming white, in the brilliant sunshine; and we are astounded as we try to realise what must have been the magnificence of the whole pile in its prime. Other portions come into view as we proceed, and soon we see the hamlet, the thatched and tiled "huts where poor men lie," scattered in delightful irregularity.

"These plots of cottage-ground, these orchard tufts
Which, at this season, with their unripe fruits,
Are clad in one green hue and lose themselves
Among the woods and copses, nor disturb
The wild green landscape."

Upon the edge of this declivity we recline and reflect upon the eloquent words of Mrs. Jameson:—"But for the monks, the light of liberty, and literature, and science had been for ever extinguished; and for six centuries there existed for the thoughtful, the gentle, the inquiring, the devout spirit no peace, no security, no home but the cloister. There learning trimmed her lamp; there Contemplation plumed her wings; there the traditions of art, preserved from age to age by lonely, studious men, kept alive, in form and colour, the idea of a beauty beyond that of earth, of a might beyond that of the spear and the shield, of a divine sympathy with suffering humanity."

We leave the terrace by zigzag paths into the dell below, and winding amongst the few scattered houses, whose little gardens are a blaze of colour, we reach the ruins, amidst whose columns and broken arches we wander long and leisurely. Seated on a broken fragment within the great enclosure, at a point where the transept intersected the nave (now vanished!), with the sweet grass at one's feet and the chattering daws above, with swallows flying through the window spaces, we gaze long and admiringly up the choir, with its magnificent window of three long lancet compartments, below which are three others of similar form. Through these six openings is seen the wooded slope of the terrace. Below, railed off around, near where the altar

once blazed in gold and precious marbles, is an abbot's tomb. On each side are rows of magnificent clustered pillars, richly capitollled, fresh as from the mason's chisel. Above these are two tiers of simple arched windows, with lovely columns at each side.

Singular to say, this building points north and south. It is in the Norman and Early English style of architecture. The monks who occupied it were of the Cistercian order, and it is the first abbey erected in Yorkshire and the second in England.

In this ruin, so lovely in decay, we see an eloquent link between the present and the past. Over seven centuries have rolled down the stream of time since the era of strong religious fervour which marked the 12th century—the age of Peter the Hermit and of many a saintly character. It was an age which saw the building of stately abbeys and the transforming of many a sterile vale into fertility and plenty. Above all, it was the age which gave birth, in the sunny clime of Southern France, to Bernard of Clairvaux. Luther says of him:—"If ever there was on this earth a God-fearing man, it was St. Bernard." He was termed "the mellifluous doctor," and his writings a "river of Paradise." Green says:—"Noble and churl welcomed the austere Cistercians, a reformed out-shoot of the Benedictines, spread over the moors and forests of the North."

Bernard sent a small body of his monks to this district. They found this part of Yorkshire a vast howling wilderness. Their beneficent labours transformed it into a paradise. Rievaulx Abbey is one of the one hundred and sixty which he founded. The devout man of to-day cherishes as his priceless inheritance the hymns of this pious soul.

Of the rise of such edifices Carlyle, in his peculiar yet significant manner, says (this passage referred to the Abbey of St. Edmunds, yet it marks the origin of many such, and is not inappropriate here):—"The wooden chapel, as we may see, has become a stone temple; the stately masonries, long-drawn arches, cloisters, sounding aisles, buttress it, begirdle it far and wide. Regimental companies of men, of whom our Jocelin is one, devote themselves, in every generation, to meditate here on man's Nobleness and Awfulness and celebrate and show forth the same as best as they can—thinking they will do it better here, in presence of God the Maker of the so Awful and so Noble made by Him. In one word, St. Edmund's body has raised a monastery around it. To such length, in such manner, has the spirit of the time visibly taken body and crystallised itself here—New gifts, houses, farms come ever in."

Our return to Helmsley is through Duncombe Park and past the Hall, which has been rebuilt since the disastrous fire of 1879. It is Italian in style. Through the courtesy of its noble owner we were conducted along the home terrace, which skirts the river Rye. Deep down in the wooded glen the river glides through level reaches or ripples over shelving rocks. On this fair summer evening, clear and fresh after thunder, it is a scene to linger long in the memory. On one side we get glints of the old town, with the massive Norman keep of Walter d'Espeç, a richly cultivated champaign beyond, with wood behind, and closing the horizon the Hambleton hills. All within the surrounding hills is the unbroken estate of Earl Feversham.

BOWDON.

[Addressed to the Members walking through the Park, at Dunham,
Saturday, June 16th. 1900.]

THE district of Bowdon is an interesting one. Dunham Park is enshrined in the memories of old persons as a wonderful playground, and used to be visited every year by a water journey from Castlefield to the Park—a journey which usually filled up a long and joyous day. The Downs are old sandbanks, left as a great legacy by the retreating estuary, which lends itself to most picturesque efforts, whilst the view from the summit across Rostherne is very beautiful.

Since the days referred to the fields of those early days have been covered with dwelling-houses of all sizes, and the old Bowdon Church is surrounded with churches and places of worship of almost all the denominations—nay, even the sacred grounds of the park itself have been invaded, and houses are now found upon its margin. It may not be long ere the park will be cut up for eligible building sites, and the fine avenues of grand old trees will disappear. It seems to some of us old folks to be a pity that this great lung cannot be preserved for the use of the teeming population about it.

The history of the district is part of the general history of the country, and the sweep of the great historic events of the country from the time of the Norman Conquest has left its mark upon the land. The rise and fall of the great families who have owned and enjoyed and lost these fair lands is the history of great houses in many other parts of the country.

When there was a sparse population, who had to be frugal in their habits if they lived at all; when forest growth covered the valleys and crowned the hills, the lands had great value; but now who can estimate the value of what is called the "unearned increment" to the persons who to-day own the freeholds, and as the pressure of population goes on, and the over-running tide of population from the great towns spreads, who can value the future "increment."

The name of the place has changed. It was spelled Bogedon (circa 1160 A.D.), meaning the hill or down by a bog. Domesday Book spells it this way, and includes it in the hundred of Bochelau (Bucklow). Bodon, Bodeon, Bawdon, Boaden, Bauden, Boden, Bowden, are other ways of writing the name, coming at last to Bowdon. This is supposed to represent the A.S. "bode," a dwelling, and "don," or "dun," a plain upon a rising hill or down.

The British road, afterwards called Watling Street, ran through the district; evidences of Danish occupation have been discovered, and a Saxon coin was found in the churchyard.

In the roll of Battle Abbey is inscribed the name of "Hamound," and this man held the Barony of Doneham, and lived in the castle, built, most likely, by a Saxon chief. The lordship was held from the Earl of Chester. The tenants held of the barons.

The fifth Hamound died without male issue, and was not careful to preserve the value of the estate for female heiresses. He may have been the baron referred to by Longfellow in "The Norman Baron"; the situation fits the poem. There were no buildings between the castle and the church, and the dying man might hear the bells ring at midnight at Dunham Church. Let us hope that the stern old baron did at last a good deed.

Many centuries have been numbered
 Since in death, the baron slumbered,
 By the convent's sculptured portal,
 Mingling with the common dust;
 But the good deed, through the ages
 Living in historic pages,
 Brighter grows and gleams immortal,
 Unconsumed by moth and rust.

The church was founded before the tenth century—how much earlier we do not know—and the place has since been the worshipping place for the people, and some of us can remember when it was the only one. The chief families of the district were commemorated by monuments and memorials on the walls and in the graveyard of the old church. The old church was restored about 1876. The registers of baptisms, marriages, and deaths go back a long way—to about 1600—and are most interesting, virtually giving the life histories of the people in the district. Ingham gives a list of the Vicars of Bowdon from 1210.

In Henry the Eighth's reign the value of Bowdon was given at ten shillings, and of Dunham Massey at eight shillings. The present value is a little more.

The story of the Booths is an interesting one, as is the story of many another old—and some now extinct—families.

But enough has been said to make it clear that this district is a most profitable one for historical and social studies, and easily lends itself to make the past life of the district eloquent in the present. The struggles, the toil, the pride of blood, the titled extinction, "the vanity of vanities," were all actively at work in the times of the barons as they are to-day.

"BIBLIOTHEK DER LÄNDERKUNDE," Herausgegeben von Prof. Dr. ALFRED KIRCHHOFF und Dr. RUDOLF FITZNER. Die Ostafrikanischen Inseln, von Prof. Dr. C. Keller. Berlin: Schall und Grand. 1898. Price Five Marks.

SOME previous issues of this series have been already mentioned in the *Journal*. The number now before us has been prepared by Dr. Karl Fricker, and quite keeps up the high level of previous issues. The East African Islands is the theme of this monograph, and it is full of interest. The Islands of Madagascar, Sainte Marie, Nossi-Be, the Comoro Islands, Réunion, Mauritius, Rodriguez, Seychelles, and Aldabra, and the smaller islands of New Amsterdam, St. Paul, Prince Edward, Crozet, Kerguelen, and Heard Islands are all described. The book is written in a scholarly way, and the information given is most welcome, especially that part referring to Madagascar. Maps of all the islands are given, and numerous small maps in the text, illustrations in the text, and quite a large number of full-page illustrations, and are beautifully reproduced. The book has 188 pages, a preface, contents table, a bibliography, and index. It is a valuable contribution to the knowledge of these countries.

THE LANCASHIRE AND YORKSHIRE RAILWAY COMPANY'S WORKSHOPS, HORWICH.

Visited by the Society, Thursday, June 21st, 1900.

THE members (a large party) were received at Horwich, and, being divided, were conducted through the works, and the following information was given, with a good deal of other interesting matter:—

The Lancashire and Yorkshire Railway runs across England, from Liverpool and Fleetwood on the west to Goole and Hull on the east coast. Amongst the towns served by this railway are Manchester, Liverpool, Wigan, Fleetwood, Preston, Blackburn, Bolton, Oldham, Bury, Rochdale, Burnley, Halifax, Bradford, Leeds, Huddersfield, and Wakefield.

The capital expended by this company is over 52 million pounds sterling; the length of the railway maintained being 557½ miles. The locomotive stock comprises 1,330 engines, which worked in the past year 11,874,754 passenger and 6,648,999 goods, or a total of 18,523,753 train-miles, with 4,173 passenger coaches and 26,617 wagons.

During the year 1898, 950,648 first, 3,115,797 second, and 55,327,257 third class, or a total of 59,393,702 passengers (exclusive of season ticket holders, numbering 24,345) were conveyed over this railway. In the same period the revenue amounted to £5,156,195, and the working expenditure to £2,909,132, with an average dividend of 5¼ per cent per annum paid to the ordinary shareholders. The signal and point levers are in every instance interlocked on the railway. In the 557½ miles of railway there are 897 signal and ground frame cabins.

THE LOCOMOTIVE WORKS.

These works, of which the building was commenced in 1886, have been erected for the purpose of repairing and renewing the locomotive stock, and of carrying out the mechanical, electrical, and hydraulic engineering work of the railway. They are situated between Chorley New Road, Horwich, and Red Moss, and are about one mile distant, in an easterly direction, from Blackrod Station, upon the main line between Manchester and Fleetwood. A fork line has been made, giving direct access to and from Manchester without passing through Blackrod Station. The land enclosed for the works comprises 116 acres. The covered area of the workshops is 21 acres. They comprise offices, general stores, boiler shop, boiler-shop smithy, forge, steel foundry, iron and chair foundries, fettling shop, bolt shop and smithy, spring smithy, signals and points and crossings shops, fitting and machine shops, boiler and economiser houses, tin and copper smiths' shops, brass foundry, telegraph shop, millwrights', joiners', and pattern-makers' shops (with gallery for storing patterns), erecting and repairing shops, engine shed, paint shop, chain-testing shop, and chain smithy.

For the carriage of materials from the stores and of work to the several shops 6½ miles of tramway lines have been laid throughout the

works, haulage being performed by small locomotives, the cylinders of which are 5in. diameter by 6in. stroke, and the wheels 16in. diameter. The frames are 7ft. 4in. over all, and the extreme width of engine is 3ft. They work at a pressure of 170lb. per square inch, and their tractive force is about 1,400lbs., and their weight, when full and in working order, is 3'19 tons.

The offices, which are 323ft. long by 58ft. wide, are placed at the north-east end of the works, and include a laboratory, which is fitted up with the requirements for the analysis of all materials, and a test room, having a 100-ton testing machine, as well as oil and spring testing machines. The offices are fitted up with electric light, both incandescent and inverted arc lamps, and each department of the works is in telephonic communication with the offices.

The general stores are 198ft. long by 111ft. wide, having a gallery built round the four sides. This building is fitted with the necessary weighing machines and hydraulic cranes for receiving and storing heavy materials.

The boiler shop is 439ft. long by 111ft. wide. It is fitted with a pair of hydraulic pumps and accumulator, two large fixed hydraulic riveters for boiler work, each having hydraulic overhead crane for lifting boilers when riveting; three portable hydraulic riveters on swing cranes, bolted to walls and columns; and overhead electrically-driven travelling cranes, in addition to the ordinary machine tools of a boiler shop. A special quadruple multiple stay tapping machine, and right-angle plate edge planing machine, have been provided. Pneumatic caulking and riveting tools are also in use in this shop, and most of the furnaces for heating rivets are fired by liquid fuel being sprayed on the fire by compressed air; a duplex multiple drilling machine—electrically driven—with 28 spindles, which drills five thicknesses of plates, thus enabling 140 holes to be drilled at one setting, is in operation.

The boiler-shop smithy, 120ft. long by 111ft. wide, is fitted with the usual smiths' fires; also hydraulic flanging presses for flanging firebox backs, tube plates, throat plates, ashpans, tank splasher, plates, etc.

The forge is 452ft. long by 111ft. wide, and contains Siemens's regenerative furnaces for re-heating, the doors of which are pneumatically raised; a 14in. merchant mill and a 8½in. guide mill, together with tyre mill and a 30in. cogging mill with electrically-driven live rolls; a 35-ton duplex hammer, and one 8-ton and two 5-ton hammers. Scrap for billets is cut up on the high level by powerful shearing machines, and is passed from this by a hopper to a long barrel, which acts as a scrap cleaner and a conveyor to the scrap benches.

The steel foundry, 150ft. long by 135ft. wide, is fitted with Siemens-Martin regenerative melting furnaces, having high level tramway for carrying ladle, and narrow-gauge tramway beneath for mould trolleys, also core-drying furnaces, moulding machines, etc. The whole of the furnaces in the steel foundry are heated by gas made from a series of Wilson's gas producers. The Tropenas process for making steel castings is also in operation.

The iron foundry is 212ft. long by 111ft. wide. Hydraulic power is used for working the cranes, in addition to which there are overhead

(electrically driven) travelling cranes, which can be used in both steel and iron foundries.

The natural formation of land, which necessitates the rail level at rear end of foundries being considerably higher than the floors of foundries, permits of coke and iron being unloaded and wheeled direct to the charge holes of the cupolas or the melting furnaces. Similarly the gas producers for the furnaces are charged direct at the top, whilst the ashes from producers are drawn out at the bottom into the tram wagons running on the lower level.

The chair and plate foundry, 124ft. long by 128ft. wide, is similarly fitted with two cupolas charged from the high level. A staging is provided for fettling the chairs, which are then placed on an endless chain, which conveys them to the railway wagons for despatch.

The carriage and wagon wheel shop, 200ft. long by 47ft. wide, is fitted with lathes for boring and turning carriage and wagon wheels; also hydraulic press for pressing the tyres on the wheels, and a press for forcing the wheels on the axles. There is also a special multiple drill for drilling holes in the retaining rings, wood blocks, and steel wheels, at one setting. Pneumatic tools have been applied to the dressing of steel castings.

The smithy bolt shop, 60ft. long by 111ft. wide, contains bolt and nut making machines, drop stamps for stamping light smithy work, also rivet and nail making machines. The furnaces in this shop are heated with liquid fuel.

The smithy, 212ft. long by 111ft. wide, is provided with 11 double and 33 single hearths, also steam hammers, etc., and fitted with Root's blower for the blast.

The spring smithy, 153ft. long by 47ft. wide, is fitted with three gas-heated spring furnaces, hydraulic spring buckle press, also buckle stripping machine and steam hammer. Special self-contained plant for making spring plates, comprising electrically-driven punching, nibbing and shearing machines.

The signal shop, 128ft. long by 111ft. wide, is used for fitting up all locking frames and general signal work, a rack-saw being provided for signal posts, boring machine, and other special tools.

The points and crossings shop, 72ft. long by 111ft. wide, is provided with special machinery for dealing with special machinery for dealing with the manufacture of points and crossings, and includes angular planing machines, duplex slotting machine, and special machine for milling and drilling locking frame standards at one setting.

The fitting shop, 508ft. long by 111ft. wide, is fitted up with a large number of milling and other machines for dealing with locomotive work, including a large milling tool for cutting out crank axle webs; also crank axle turning lathes, and drilling and slotting machines. These machines are driven by wall engines bolted at the end of the shop, giving motion by means of bevel gearing to four ranges of shafting running longitudinally. Four 5-ton high-speed electrically-driven jib travelling cranes control the machines on each side.

The high level boiler house and low level boiler house each contain a battery of Lancashire boilers, with Green's economisers.

The brass foundry, 164ft. long by 47ft. wide is fitted with gas furnaces for melting heavy work, and gas crucible furnace.

The coppersmiths' shop, 89ft. long by 47ft. wide, is fitted with the necessary appliances for dealing with all tin and copper work used on the railway, and contains furnaces, etc., for brazing tube ends, etc.

The telegraph shop, 153ft. long by 47ft. wide, is provided with testing room, and special tools for making and repairing telegraph and block instruments; also automatic screw-making machine, etc.

The tinsmiths' shop, 92ft. long by 47ft. wide, is arranged with tin-making plant for dealing with railway requirements.

The joiners' and pattern-makers' shop, 164ft. long by 111ft. wide, is fitted up with modern machinery for sawing, boring, and morticing, etc.

The millwrights' shop is 146ft. long by 111ft. wide. In this shop all the hydraulic and general repairing work for the line is carried out; there are overhead travelling cranes (rope driven), and other special machinery for the work required.

The erecting shop is 1,520ft. long by 118ft. wide, and has been arranged for the repairs of existing and the building of new engines and tenders, and is provided with twenty 30-ton electrically-driven overhead travelling cranes, portable hydraulic riveters, flexible shaft drilling machines, driven by motors, and the necessary tools for repairs. Access for engines to the centre portion of this long shop is obtained by two traversers. Wheel lathes, in some cases electrically driven, are provided in various positions for conveniently dealing with wheels taken from engines under repairs.

The paint shop is 234ft. long by 111ft. wide, and, unlike all the other shops, has a weaving-shed type of roof, therefore obtaining a light free from sun glare. It is fitted with the necessary grinding and mixing machines, which are electrically driven, and provided with heating arrangement for the thorough drying of the paint quickly.

The chain testing shop is 111ft. long by 27ft. wide, and the chain smithy 95ft. long by 28ft. wide. These shops are fitted with a steam hammer and hydraulic testing machine, all chains being tested before being sent out for use.

The gasworks are situated on the south-west boundary of the works, and at a much lower level. They are of sufficient capacity to light all the company's workshops and premises at Horwich and Blackrod.

Dining-rooms have been erected near the public entrance to the works, for the accommodation of the men who live at a distance. Accommodation is provided for 1,100 men, whose meals are cooked or heated by attendants in charge of the rooms.

MARPLE.

Visited by the Society, Saturday, June 30th, 1900.

THE Society has had on many occasions to thank Mr. Joel Wainwright, J.P., for his kind guidance and hearty hospitality. Mr. Wainwright has had more than two hundred of the members under his direction, and all those who have had the honour and the pleasure of being directed are grateful for the charm thrown around their visits. The moors, the woods, the streams, the lush meadows have been explored, their botanical wealth has been examined, the birds have given



MR. SAMUEL OLDKNOW.

their songs, and sometimes have exhibited their nests, whilst the grim heights have shown their age-worn sentinels, which have stood since the primitive man sheltered himself in the woods and worshipped on the heights—Ludworth calling to Disley, and Disley to heights beyond.

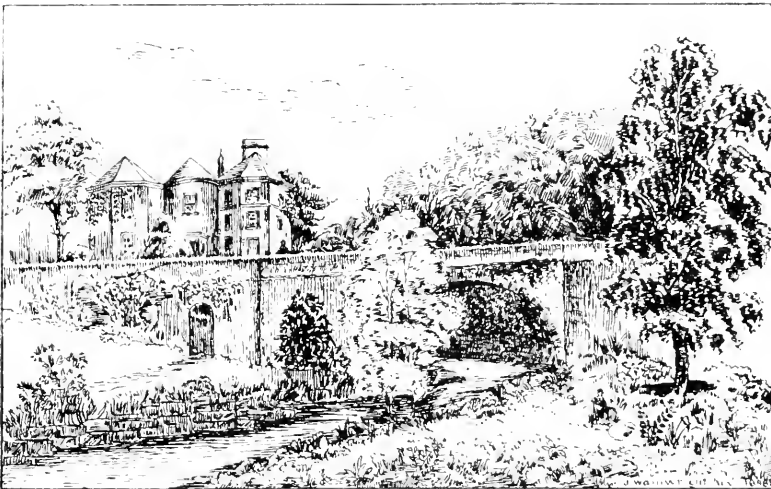
On the occasion of the last visit of the Society Mr. Wainwright adopted another course, which was most instructive and pleasing. He took the members through the village, and told the story of some of those who had lived and died. We are greatly indebted to him, because he has not only allowed us to use his sketches of Marple, but has especially drawn a frontispiece for this volume of the *Journal*, "*Nature's Haunts*," to commemorate the visit of the Society.

Mr. Wainwright met the members of the Society at the railway station, and headed for a fieldpath, which duly ended at Oldknow's bridge and house. Whilst we stood upon the bridge the story of



OLDKNOW'S MARKET PLACE.

Oldknow was recited. The early struggles of Oldknow were told; his journeys to London with his packhorses; the ways of the manufacturer; his payment of wages to his workpeople by cheques or orders on his shop; the establishment of his market (which, we were told, is to be swept

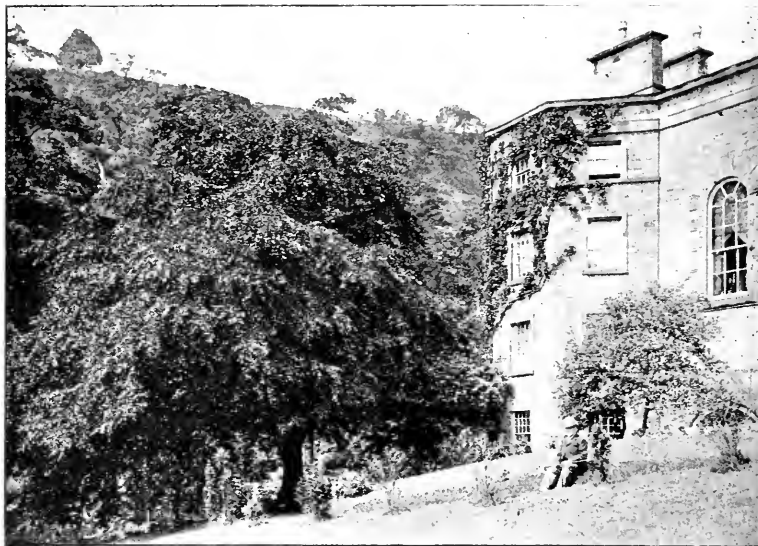


OLDKNOW'S BRIDGE AND HOUSE.

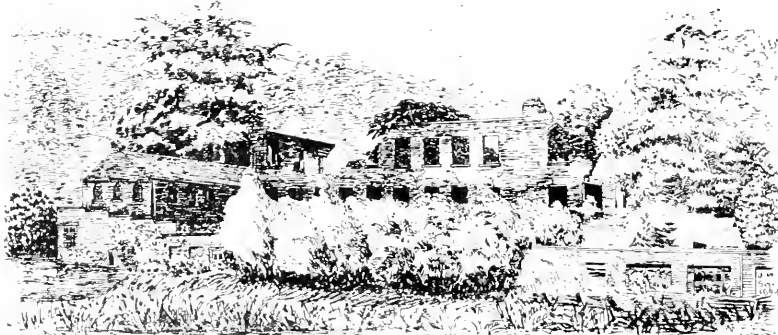
(Seen from the garden house, looking up the river and showing door to the underground passage from house to stables.)

away by modern improvement). The introduction of orphan children and the building of the orphanage, which we visited, and all the

interesting facts of Oldknow's life ; his connection with the great cotton lord Arkwright, and the quietening down of the uproar and life towards the end were not forgotten : whilst the guide waxed eloquent on the



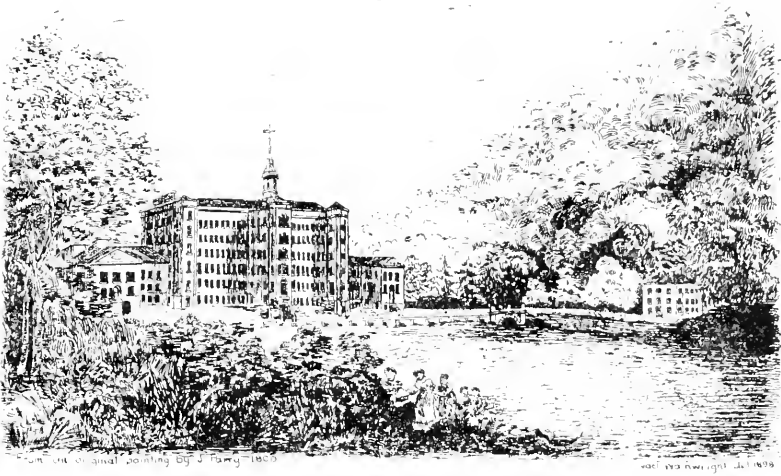
BACK OF MELLOR LODGE, WITH COPPER BEECH.



OLDKNOW'S MILL (EAST FRONT), AFTER THE FIRE, NOVEMBER 17, 1892.

enormous benefits this one man—by his industry, skill, and sterling honesty—had conferred upon the district. The love affair of Oldknow

was delicately touched upon, and after greatly admiring the huge copper beech keeping guard over Mellor Lodge, the party was courteously



OLDKNOW'S MILL (WEST FRONT).



WINDYBOTTOM BRIDGE, MARPLE.

allowed to walk to the lawn at the back of the house, and they were surprised to find other giant copper beeches keeping guard on the other

side. After admiring the wealth and beauty of the trees in their summer foliage on both sides of the river, attention was turned upon the sad



WHITECROFT, STRINES, ON NO MAN'S LAND. RESIDENCE OF OLD BRUCE, THE CLOCKMAKER, WHO DIED HERE.



MARPLE HALL.

ruins of the mill built by and formerly belonging to Oldknow—a very vivid reminder of the mutability of earthly things. The mill, as it stood before the fire, is shown by a drawing by Mr. Wainwright.

Before leaving the waters, the old Windybottom Bridge, almost covered with greenery, said to have been a Roman bridge, but anyway very beautiful as it stands, was referred to by Mr. Wainwright. The story of the self-made mechanic who constructed the clock to strike thirteen, and which does its work perfectly, and the peculiar history of the small territory called "No Man's Land," now appropriated, was told the members.

After visiting the Orphanage, our guide described Old' Marple. Amongst the places referred to by him in his most interesting description, was Marple Hall, which time did not permit us to visit. This was



MRS. BRADSHAW-ISHERWOOD.

at one time the house of Judge Bradshaw, who presided at the trial of King Charles, and from this text the work of other men who have lived and moved in these delicious valleys was recorded. Amongst the last of the persons to be mentioned was the gracious lady who has but lately passed away, to the great regret of her neighbours: Mrs. Bradshaw Isherwood played a most humane and great part in the lives of many of these valley dwellers, whilst her keen intelligence and kindly insight were very often used with considerable effect. Our guide had the most respectful regard for Mrs. Isherwood, and keeps her memory green, regarding her as one of the most charitable and able women he has had the pleasure to know in a long and busy life.

Parts of the village stocks, which were used, no doubt, in earlier times pretty freely, are still to be seen, and bristle with recollections of the use to which Butler puts them in "Hudibras."

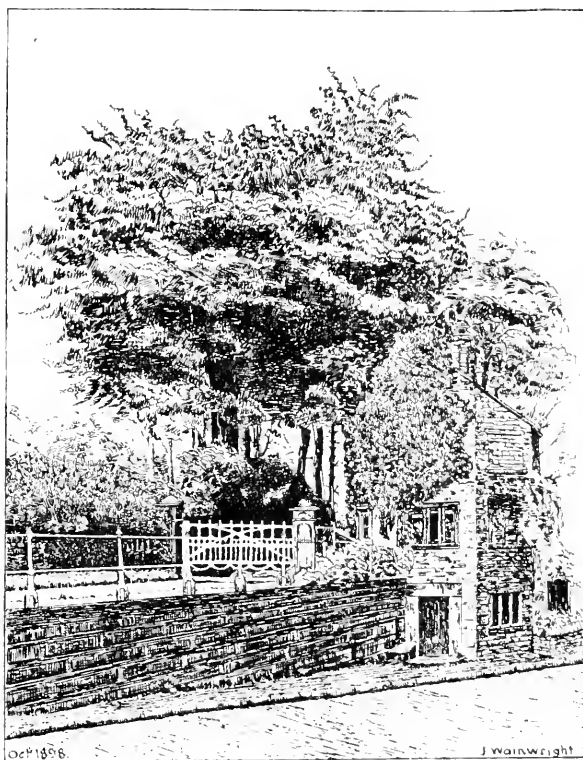


ROSE HILL COTTAGES.
The Model of Old Dwellings abolished in 1895.

The removal of old buildings, or the removal, in some cases, from them, was referred to with the pathos of one who had rejoiced in their beauty and was now looking backward. Rose Hill Cottages, for instance,

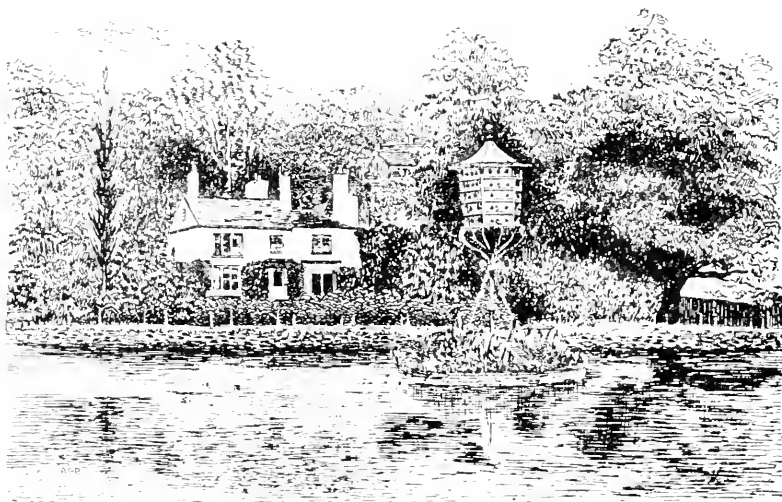


MARPLE GRAMMAR SCHOOL, DEMOLISHED 1886.



ENTRANCE TO BRABY'S PARK.
Showing Ivy covering house end 30 years after the root had been cut away

were particularly referred to, and their destruction was regretted. These were quite model dwellings, and could have been made amenable to the requirements of modern sanitation. The old Grammar School, which has played its part well for a long time, was taken down in 1886. The dropping out of these old buildings is enough to give scope to wonder how the generations brought up in them managed to become artists, masters of industry, and millionaires. We may hope the present generation will make as good a use of their opportunities as their forbears did of theirs. Then the Brabyn's Park was mentioned, with the luxurious ivy growing over one side of the lodge, whose roots were cut away many years ago, but which still vigorously asserts the right of the survival of the fittest. A touching reference was made to "Whitcroft," Strines (see illustration), the old home of our guide, where he spent many happy years, and which he can never forget.



STRINES COTTAGE.

Our guide then brought us through the village, telling the story of floods, of a broken bridge gallantly repaired, of the close of the old times and the opening of the new, and so we came to delicate and beautiful "Finchwood," where we rested. Fresh treasures were exhibited here—etchings by Nasmyth, pictures, books, models: outside, the rose garden, and the glorious view, on their several mounts, of the towers of Mottram, Mellor, and Marple, and, as the shades of evening were falling fast, we excelsiorised up to Marple Station, thankful and delighted with another visit to this beautiful place and to our guide.

We took a photograph or two, which are reproduced in the Proceedings in this volume of the Journal.

NEW BOOK.

"LANCASHIRE HUMOUR." By THOMAS NEWBIGGING. With illustrations by J. AYTON SYMINGTON. 136 pp., preface, index, and many illustrations. London. J. M. Dent & Co. 1900. Price 3/6.

This is another delightful issue by our old evergreen member. There are those who object to dialects, either because of ignorance or because they have never felt the music. We take just one story as a sample: many of our members will not be satisfied until they have the rest.

"Jim Shackleton, better known by the nickname of 'Jamie-go-deeper,' was a sturdy Lancashire ganger, honest and shrewd as they make 'em, a hard and steady worker—faithful and staunch and true to his employers. In his younger days Jim had wielded the pick and spade and trundled the wheel-barrow, but at the time of which I speak he was the boss or ganger over a regiment of navvies. He used to speak of puddle and clay and earthwork as though he loved them.

Jim was employed on the Manchester Ship Canal when it was in course of construction—down below Latchford Locks. The Company, as is well known, had in several places to trench on private property, which had to be purchased from the owners either by agreement or on arbitration terms, and some of the owners, not over-scrupulous, valued their lands at fabulous sums, on account, as was asserted, of their prospective value, as being favourably situated for building purposes, or because, as was alleged, of the valuable minerals in the ground. One such claim was being contested and there were the usual arbitrators, umpire and counsel, with a host of expert valuers on each side. The owner in this instance claimed that there was a valuable seam of coal underneath, and he had set men to make borings on the pretence of finding it.

Jim, who was employed, as I have said, by the Canal Company, had been subpoenaed by the owner of the land in question with a view of making him declare that he had seen this boring for coal going on in a field which he had to cross daily in going to and coming from his lodgings in the neighbourhood. Counsel is questioning Jim after being sworn:

'Your name is James Shackleton?' 'For anything aw know it is,' replied Jim. 'And you are employed as a ganger on this section of the Canal?' 'Aw believe aw am.' 'And you lodge over here!' pointing to a group of cottages shown on a map of the particular locality. 'Aw do,' answered Jim. 'And you cross this field' (again pointing to the map) daily—two or three times a day—going to and coming from your work?' 'Yea,' was Jim's reply. 'And in going and coming you have, of course, seen men engaged in boring for coal?' 'Noa, aw haven't,' said Jim in reply, shaking his head. 'You have not seen men boring for coal in this particular field?' (again pointing out the place on the map). 'Noa!' said Jim, stolidly. 'And yet you live here, and pass and repass this field several times!' 'Yea, aw do.' 'And you actually tell me that you have never seen workmen boring for coal in this field?' 'Aw do,' said Jim. 'Now, on your oath, be careful—have you not seen men engaged in making borings in this field?' 'Oh! ay,' replied Jim, 'Aw've seed 'em boring.' Counsel smiled triumphantly, stretched himself up, and looked round the Court and towards the umpire with a self-satisfied air. 'You *have* seen them boring for coal, then?' 'Noa,' responded Jim with an imperturbable face. Counsel fumed. 'You have not seen them boring for coal!' (shaking his finger at Jim). 'Noa, not for coal. Aw *have* seen 'em boring.' 'Then what the d—! were they boring for?' 'They wur boring for compensation!'

KEDLESTON.

Visited by the Society, Wednesday, July 25th, 1901.

THE visit of the members to Derby was very much enjoyed. The drive through the town allowed the party to see much which they had a great desire to examine more closely. The market square, one or two churches, particularly All Saints', which contains the Cavendish chapel, and the tomb of the great Peak palace builder, the Countess of Shrewsbury, the Lamb Mill, Bemrose's printing works, and the great works of the Midland Railway. But time was inexorable, and was completely filled up by the visits made.

The grand County of Derbyshire is somewhat peculiar, inasmuch as the great Lord of the Peak takes his title from the County of Devon, whilst another great landlord, perhaps the greatest in Lancashire, obtains his title from Derby.

Derbyshire is so grand a county from its natural beauties, its rich mineral veins, the fine conformation from the plain to the Peak, and its wonderful collection of colleges, churches, and halls, rich in the artistic spoils of centuries, gathered in buildings unique for their history and architectural development and beauty, that hardly anything could surprise such expectant mortals.

It was a gracious thought of the Right Honourable and Rev. Lord Scarsdale, during the stress of the Indian Famine, to open his fine and historic seat to the gaze of the multitude, so that some help might be sent to famine-stricken India. Kedleston is not usually a show place, and at ordinary times it is difficult to obtain access. Lord Scarsdale must have had great pleasure to see the splendid response to his kind offer. More than £3,000 was sent to India as the result of the fees from visitors. And judging by the result of an inspection by the members of the Geographical Society of this old and glorious park, of the great house, with its priceless treasures, the Norman church, gardens, and waterfalls, the thousands who for the first time were allowed to see all these things must have felt great pleasure and intense satisfaction. The Manchester Geographical Society's members spent about three hours in the examination, and the time sped very quickly.

During the journey in the saloon some interesting particulars, reaching back to the Battle of Senlac, were given of the ancient House of Curzon, a family distinguished by the number of its members who have taken part in public affairs; they have numbered on their family roll a cardinal, lawyers, clerics, sheriffs, members of Parliament, and great military and naval commanders.

One of the interesting things in the investigation of the family tree, hung on one of the walls of the hall, is to see how interwoven is the history of this house with that of other great families of renown, from Lancashire in the north, to Essex in the south. A few extracts from the pedigree, as given in the "*Peerage*," will make this clear.

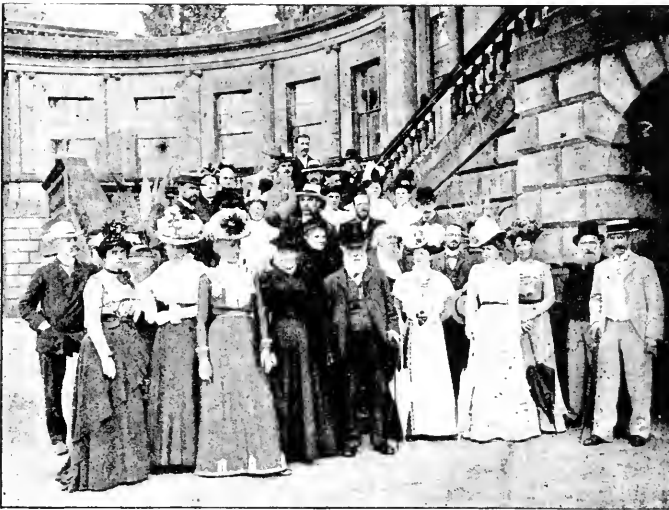
In 1164 Richard de Courzan held four knights fees in Kedleston of Earl William de Ferrars. In 1330 Edward the First granted, in the

34th year of his reign, a charter of free warren for Kedleston. Sir Nathaniel, the second baronet of Nova Scotia, married a daughter of



Photo by W. B. Leech.

THE BRIDGE IN KEDLESTON PARK.



AT THE FOOT OF THE STAIRS AT KEDLESTON.

William Penn, of Pen, in Buckinghamshire. Sir Nathaniel, the fourth baronet, was M.P. for Derby from 1727 to his death in 1758. He

married Mary, a daughter of Sir Ralph Assheton, of Middleton, and he left two sons—the first, Sir Nathaniel, fifth baron, who became the first Lord Scarsdale; the second, Assheton, who was created Viscount Curzon, and who was the ancestor of Earl Howe. The Howe creations are—baron, 1794; viscount, 1802; earl, 1821; all of the United Kingdom. But the second son of Assheton Curzon was created Baron Zouche. His motto is "Let Curzon hold what Curzon helde." The family seems to have done this fairly well.

The motto of Lord Scarsdale is "Recte et suaviter." The baronetage of Nova Scotia was conferred on Lord Scarsdale's ancestor in 1636, and the baronage of the United Kingdom in 1761. Lord Scarsdale has a

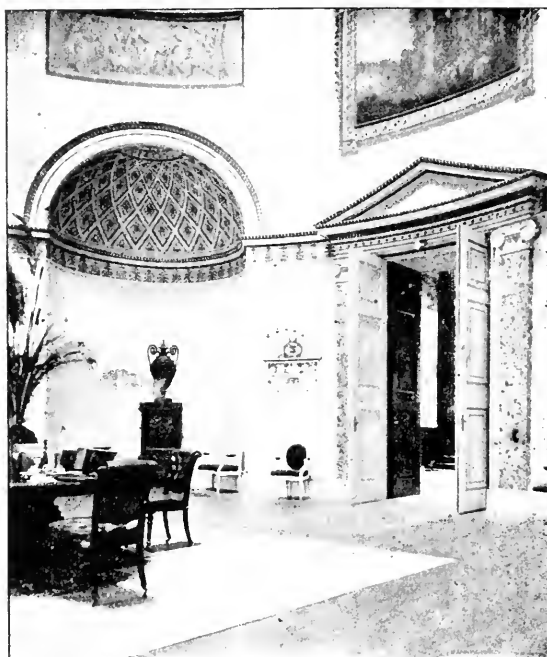


Photo by J. Wilde.

ENTRANCE HALL.

family of six daughters and four sons. The eldest son is the present brilliant and painstaking traveller, politician, and Viceroy of India, and he married, as is well known, an American lady.

Lord Scarsdale has been the Rector of Kedleston since 1856. This is a discharged rectory. The little village adjoining the hall is a model village, with about 130 inhabitants: quite enough to fill the beautiful Kedleston church of All Saints. The church of All Saints, at Kedleston, adjoins the hall. It is a small building. There is a Norman doorway, and it contains a number of interesting monuments. "Perhaps the most curious are in the floor of the chancel, where, upon removing two circular pieces of wood, the heads of a knight in armour and his lady in

veil and whimple, appear about a foot below the surface; the heads are in high relief, and are enclosed in quatrefoils."

The entrance to the park is by a stately lodge designed from the Arch of Octavia, and the long drive from the lodge, bordered by great copper beeches, oaks, and elms, with the wide sweep of vision over the rolling champaign, will not soon be forgotten. The deer, in small herds, the sun flecking their sides, added another element of beauty.

We crossed a bridge of three arches over the Derwent, from the crown of which some pretty backwaters of the river and the waterfalls were seen. In the park is a chalybeate spring, the waters of which are



Photo by J. Wilde.

THE HALL.

much prized, and were formerly in much request. Over the spring is a small temple, with waiting-rooms, etc.

The views in the park are charming, being helped greatly, from a picturesque point of view, by the River Derwent flowing past the hall with the small waterfalls.

The present hall was erected in 1756-65 by Sir Robert Adam. The house occupied nine years in building—from 1756 to 1765—but never realised the full conception of its author. This consisted of a central block or quadrilateral, from the four angles of which sprang curving corridors, connecting it with four subsidiary blocks or pavilions. Two only of these corridors and pavilions were completed—viz., those on the

north front; but the main features of the plan were subsequently reproduced, with considerable differences of structure and form, in the Government House in Calcutta. In a further respect Kedleston



Photo by J. Wilde.

VIEW FROM DRAWING ROOM.

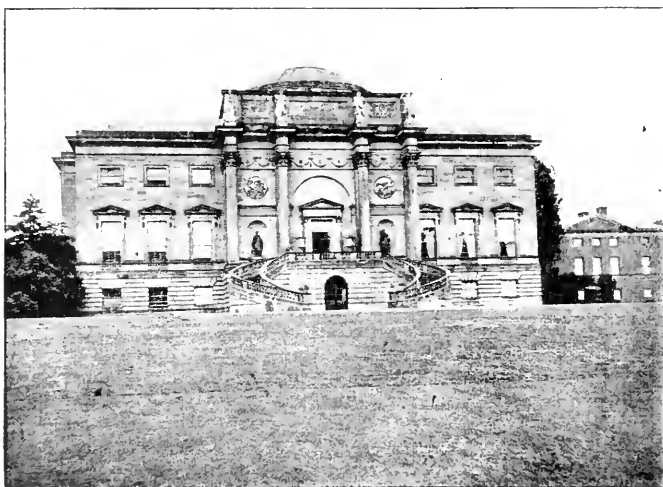


Photo by W. B. Leech.

GARDEN FRONT OF HALL.

would seem to have remained unfinished; for, while the central block was built of grey stone from North Derbyshire quarries, the upper storeys of the pavilions only received a facing of stucco on a background

of brick. The new house was so placed as almost to enclose the churchyard and church, whose position conveys the suggestion of a private chapel of the owner. The paddocks and enclosures and outbuildings—including the old parsonage—that surrounded the Queen Anne mansion were swept away, and an open expanse of park-land sloped down from the hall to the water, where a brook that follows the valley from Mercaston to Derby was simultaneously broadened out so as to represent a series of lakes, covering some twenty-three acres, the section in front of the house having the appearance of a serpentine river. No small skill in landscape gardening was also shown in planning the surroundings: for the rising ground behind the house was crowned at the summit of the



Photo by J. Wilde.

VIEW OF GARDEN FRONT SHOWING TOWER OF ALL SAINTS' CHURCH.

ridge with a belt of trees that now forms a noble background to the big grey pile lower down. The opposite slope on the north front was similarly planted; and the fall of the ground permitted of a series of waterfalls and cascades in the channel of the widened stream, the principal of which was spanned by a particularly graceful stone bridge of three arches, in full view of the windows.

The central pavilion of the house is faced by a pediment and portico, the columns of which, thirty feet high—some hewn out of a single stone—are modelled from those in the Pantheon at Rome. A two-fold diverging stairway, meeting on a platform under the pillars, leads to the first floor, upon which it was the main feature of Adam's design to

group all the state rooms, reception rooms, and principal living apartments, the bedrooms being above and the offices below. The central block was the part of the mansion to be devoted to entertainment and splendour; the east wing was the family residence; the west wing contained the kitchen, laundry, and servants' quarters. The stables were erected on a similar scale of magnitude beyond the church.

On the ground floor is a great hall, with massive pillars supporting those in the hall above, and with niches containing a series of busts of the Cæsars, and hence called Cæsar's Hall.

The Marble Hall is remarkable—sixty-seven feet long, forty-two feet broad, and forty feet high. It has a coved ceiling, lit from above,

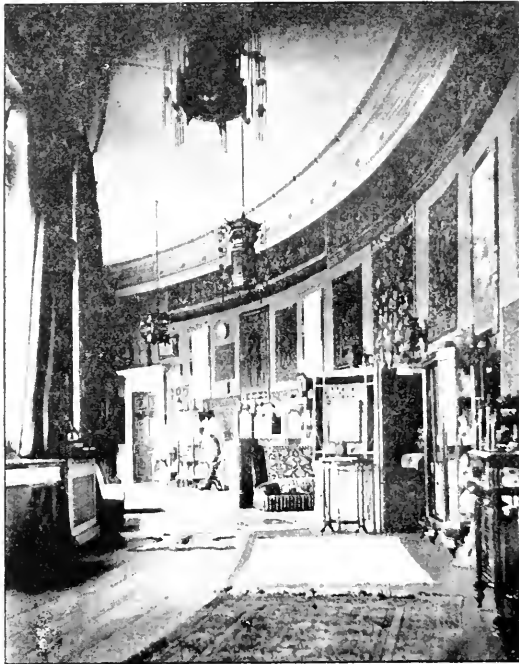


Photo by J. Wilde.

CORRIDOR, EAST WING.

and is supported by twenty fluted Corinthian columns, twenty-five feet high by two and a half feet in diameter, of red and white streaked Derbyshire alabaster, which was quarried from a hill through which the main line of the Midland Railway passed by a short tunnel just before passing the River Trent south of Trent Station. The effect of this beautiful hall, with its plaster casts and Homeric frescoes, is very charming.

Passing through a fine entrance chamber into the Great Hall we find the effect enhanced by the skins on the marble floor, and by the tables and other pieces of furniture of Derbyshire spar.

The central square mass of the building, with columns of a single stone thirty feet high, and modelled from those in the Pantheon at Rome, the double staircase, and the sweep of the corridors to the ends of the building, has a fine effect. The views on every side seen from the rooms are most beautiful, but are difficult to reproduce, but make a lasting effect on the mind.

The garden front, with double staircase, was modelled from the Arch of Constantine. There are fine trees and shrubs in the garden.

The views of the hall from many parts are pleasing, but one in which the tower of the church comes in has a good effect.

We are not to make a catalogue of the contents of this beautiful palace. The spoils of the chase, the results of exploration in many lands, silk, satin, and other stuffs, some most elaborately embroidered; pictures by great artists—Snyders, Claude Lorraine, Zuccarrelli, Zucchi, a magnificent Rembrandt, Veronese, Tintoretto, del Sarto, Vandyk, Ponceau, Peter Lely, and others: statuary, delightful wood-carving in cabinets and furniture, articles of *vertu* in very great variety, helped by the great spacious mass and beauty of these great square rooms and curved corridors and the splendid circular hall, with sunk pictures in the wall—these are all remembered as “things of beauty which will be a joy for ever.”

We spent three hours in viewing this rich and varied collection, and found the time all too short.

The visit made a red-letter day in the lives of those privileged people who were there, and the presence of the Venerable Frank Curzon and of our Chairman gave greatest pleasure.

We returned through the park and left with such a picture in our eye as this of a “Monarch of the Forest.”



PROCEEDINGS OF THE SOCIETY.

APRIL 1ST TO DECEMBER 31ST, 1900.

The 542nd Meeting of the Society was held in the Library on Tuesday, April 3rd, 1900, at 7-30 p.m. In the chair, Mr. MARK L. SYKES.

The Minutes of the meetings on March 13th and 27th were read and approved.

The election of the following member was announced: Mr. A. L. Payne.

The following presentations to the Library were announced:—Presented by Mr. George Thomas: "History of Madagascar," 2 vols., Rev. W. Ellis, 1838. "Cultivation and Manufacture of Tea," S. Ball, 1848. Ruschenberger's "Narrative of a Voyage Round the World in 1835-37," 2 vols., 1838. United States Geological Survey: "Nineteenth Annual Report, 1897-8," part II. "Twentieth Annual Report, 1898-9," part VI., 2 parts.

The following telegrams, etc., from the London *Standard*, April 3rd, were read and commented upon:—

THE BRITISH ANTARCTIC EXPEDITION.

(THROUGH REUTER'S AGENCY.)

CHRISTIANIA, April 2nd.

The *Aftenposten* publishes the following telegram from Mr. Borchgrevink's Expedition, dated the Bluff, New Zealand, April 1: "The task of the South Polar Expedition has been accomplished. The position of the Southern Magnetic Pole has been determined. The most southerly point reached by the sledge party of the Expedition was 78 deg. 50 min. M. Nicolai Hansen, the zoologist, of Christiansund, has died. All the other members of the Expedition are well. The most southerly point previously reached was 78 deg. 41 min."

The following telegram, says the *Westminster Gazette*, sent from the Bluff, Campbelltown, which is one of the southernmost ports on the south coast of the South Island of New Zealand, has been received by Sir George Newnes from Captain Borchgrevink: "Bluff. Object of Expedition carried out; further south with sledge (record) 78 deg. 50 min.; present position of South Magnetic Pole located; Zoologist Nicolai Hansen dead; leaving for Hobart; all well.—BORCHGREVINCK."

Sir Clements R. Markham, the President of the Royal Geographical Society, in opening a meeting of that body held last evening, at the University of London, announced the receipt of the following telegram, despatched on the previous day from New Zealand by Captain Borchgrevink: "Object Expedition carried out; present position South Magnetic Pole located; furthest south with sledge, 78 deg. 50 min.; Zoologist Hansen dead. All well.—O. E. SOARN V. BORCHGREVINCK."

Mr. E. W. COWAN addressed the Society on "The Lapland Alps," and illustrated his address with a series of very fine slides made from his own and his brother's photographs taken by them on the journey.

Mr. John R. NEWBY moved a very hearty vote of thanks to Mr. Cowan for his exceedingly interesting address; Dr. R. T. WILLIAMSON seconded the resolution, and inquired about the prevalence of malaria.

Mr. COWAN replied to questions and responded.

The 543rd Meeting of the Society was held in the Library, on Tuesday, April 24th, 1900, at 7-30 p.m. In the chair, Mr. J. D. WILDE, one of the Honorary Secretaries.

The Minutes of the last meeting were read and approved.

Mr. J. HOWARD REED, one of the Honorary Secretaries, addressed the members on the rise and history of the various republics which have existed in South Africa since the date of the British annexation of the Cape in 1815.

Several questions were asked, to which Mr. Reed replied.

Mr. REED responded.

The SECRETARY called attention to the papers in the Library dealing with the South African question, which have been placed in the Members' Room for the use of the members.

EVENTS IN SOUTH AFRICA.

Proclamations issued by the Boer Leaders and by Sir W. Owen Lanyon, and Correspondence. Two parts. 1881.

Report of Commissioners for the Settlement of the Affairs of the Transvaal. Two parts. 1882. Maps. Instructions to the Royal Commission (definition of suzerainty). 1881.

Debt due to H.M. Government and Account of Debt. Two parts.

Correspondence respecting the London Convention of 1884.

Correspondence respecting the Disturbances in Bechuanaland, 1884.

Correspondence respecting the Rooi Grond Freebooters—Organisation of a Police Force.

Correspondence respecting the Shooting of Mr. Christopher Bethell.

Further Correspondence. Three parts. 1884-5.

Sir Charles Warren's Expedition, and Report on the Settlement of Bechuanaland, 1885. Two parts.

Delimitation of the Boundary Line between the Transvaal and Bechuanaland, 1885. Maps.

Further Correspondence, 1886. Two parts. Maps.

Report on the Session of the Volksraad, 1888.

Petition from British Residents, presented to Sir H. B. Loch at Pretoria, 1884, with Correspondence on the Proportion of British Subjects resident in the South African Republic, 1895. Two parts.

Papers relating to the Grievances of H.M. Indian Subjects in the South African Republic. Two parts. 1895-6.

Correspondence on the subject of Recent Disturbances, 1896; Jameson Raid, etc. Two parts.

Papers relating to the Commandeering of British Subjects.

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- Letter from Sir J. R. de Wet relative to his retirement, 1896.
- Report of the Select Committee of the Cape of Good Hope Assembly on the Jameson Raid, 1897.
- Report from the Select Committee of the House of Commons. with Evidence. Three parts. 1897.
- Correspondence on the Closing of the Vaal River Drifts.
- Claim for Damages on account of Dr. Jameson's Raid. with Correspondence. Three parts. 1897-8.
- Imprisonment of Mr. W. D. Davies and Captain Woolls Sampson at Pretoria, 1897.
- Correspondence relating to the Explosives Monopoly, 1898.
- Report for 1897 on the Trade, Commerce, and Gold Mining Industry, 1898.
- Correspondence relating to the Status of the South African Republic—Suzerainty.
- Alien Immigrants' Law: Correspondence, 1898.
- Correspondence and Papers relating to the Complaints of British Subjects—Edgar Case; Uitlanders' Petition to the Queen; the Political Situation.
- Papers relating to the Bloemfontein Conference, June—July, 1899.
- Further Correspondence on the proposed Political Reforms—The New Franchise Law.
- Further Correspondence on the proposal for Arbitration, June—August, 1899.
- Further Correspondence on the alleged Conspiracy at Johannesburg, May—September, 1899.
- Further Correspondence on the Ultimatum from South African Republic, September—October, 1899.
- Further Correspondence, South Africa, January 18th.
- Further Correspondence, Defence of Natal.
- Further Correspondence, Cape Colony and Adjacent Territories, 1885. 1886.
- Bechuanaland, etc., 1887.
- Claims of British Subjects in the German Protectorate, 1887.
- Further Correspondence, Zululand, etc., 1884. 1885. 1885. 1887. 1887. 1887. 1887.
- Affairs of Pondoland. 1885. 1887.
- Affairs of Swaziland. 1887.
- Transvaal and Adjacent Territories. 1885. 1885. 1885. 1885. 1886. 1886.
- And other books and papers, with the following maps of South Africa:—
- Relief Map of the Transvaal. Drawn and compiled by Mr. E. A. Mackenzie.
- Bacon's Bird's-eye View of South Africa.
- The "Daily Chronicle" Map of the Boer Republics. Compiled from Official Sources. 1899.
- The Castle Line Map of South Africa.
- The "Times" Map of British South Africa, the Transvaal, and Orange Free State.
- Map of the South African Republic and Adjoining Territories.
- Military Sketch of the Biggarsberg and of Communications in Natal, North of the Parallel of Ladysmith. (A very fine contoured map.)

Map of the Seat of War in South Africa. Prepared in the War Department, Adjutant-General's Office, Military Information Office.

Transvaal and Orange Free State, Intelligence Division, War Office.
(This is a large Scale Map in six sheets.)

The CHAIRMAN moved that very hearty thanks be tendered to Mr. Reed for his very instructive and interesting address. The motion was seconded, and carried.

The 544th Meeting of the Society was held in the Library, on Monday, April 30th, 1900, at 7-30 p.m. In the chair, Mr. HARRY NUTTALL, Vice-Chairman.

The Minutes of the last meeting were read and approved.

Mr. JOHN R. NEWBY gave the third address on "Iceland," being an account of his visit to the Geysers. The address was illustrated by slides, made from photographs taken at the time or obtained by him, and with a large number of interesting natural history and other specimens.

Many questions were asked, to which Mr. Newby replied.

The meeting was interesting from the fact of an Icelandic gentleman being present, who expressed himself as greatly delighted with the address, the fine slides, and the curiosities.

The CHAIRMAN moved, and the motion was seconded, supported, and carried, that the best thanks be given to Mr. Newby for his address, and a hope was expressed that the substances of his three addresses should be given in the Journal.

Mr. NEWBY responded, and promised his acquiescence to the request.

The 545th Meeting of the Society was held in the Coal Exchange, Market Place, on Friday, May 18th, 1900, at 7-30 p.m. In the chair, the Rev. S. A. STEINTHAL, Chairman of the Council.

The Minutes of the previous meeting were read and approved.

The election of the following members was announced:—

ORDINARY.—Mr. Arthur L. Payne, Col. W. W. Clapham, Mr. Francis Godlee, Mr. E. F. Sheppard, Mr. John Muckelt, Mr. E. Russell Evans, Mr. Walter Lees, Mr. J. Govane Duncan, Councillor Joseph Tyas Cooper, Rev. J. Forbes, M.A., Mr. Joseph Hewitt, Mr. George Hicks, Mr. F. M. S. Grant.

The following presentations were announced:—

The Royal Geographical Society:—Seven maps to illustrate Sir John Murray, K.C.B., and Mr. F. P. Pullar's Bathymetrical Survey of the Scottish Lochs. The Translator:—Estudios de Orografía Andina. Exploraciones y ascensiones de Sir Martin Conway en los Andes de Bolivia por Manuel V. Ballivián, Presidente de la Sociedad Geographica de la Paz. 1900. 76 pp. The Publishers:—The King. Vol. i., No. 14. Containing War Scenes, Her Majesty the Queen's Visit to Ireland, etc. Messrs. J. Fairfax & Sons, London: The "Sydney Mail" and "New South Wales Advertiser." Vol. lxi., No. 2,084. Contains many pages of pictures relating to the war in South Africa. The Author:—Delegates' Report to the Geological Society of British Associa-

tion Meeting at Dover, by Mr. Mark Stirrup. The Author:—On the Propagation of Earthquake Motion to Great Distances. By Mr. R. D. Oldham, Indian Geological Service. The Secretary:—Duncan's Streets and Walks. Local Guide, Bolton and District, with 14 plans. A very useful and handy little guide. The Société de Géographie de Lille:—Allocution de M. Ernest Nicolle, Vice-President. La Mort récente de M. Paul Crepy. Séance Solennelle du Dimanche, 21 janvier, 1900. Signor Bodia, Rome:—Statistica Industriale Lombardia, 1900. The Director of Statistics:—Anuario Estadístico de la Provincia de Buenos Aires, año 1897. By Carlos P. Salas, Director General de Estadística. La Plata, 1899. Boletín Demográfico Argentino, año 1, enero de 1900, número ii. Buenos Aires, 1900. Anuario de Estadística de la Provincia de Tucumán, Correspondiente al año de 1898. Buenos Aires, 1899.

The Chairman, Vice-Chairman, and other members of the Council received the members of the Society, of whom a large number were present, at half-past six o'clock.

At seven o'clock Mr. JOHN SNADDON addressed the Society on "Reminiscences of a Visit to the Exhibition of 1889, and to Paris in that Year."

The address was illustrated with many slides, lent by Mr. James Wilde, Mr. J. Howard Hall, and others.

Mr. FOSTER (Dean and Dawson) addressed the members, and gave interesting information regarding the Exhibition, and on the best way of going to Paris this year.

Information as to the plans of Messrs. Cook, the Polytechnic, Perowne, the L. and N.-W. Railway, and others in reference to the subject was given by the Secretary; and reference was made to the gift by Mr. Geo. Thomas of the Golden Book of the Exposition.

Light refreshments were then served.

At half-past eight a musical festival, vocal and instrumental, under the direction of Mr. W. Harper, was held.

Very hearty thanks were given to Mr. Snaddon for his address, and to all who had given information, to the musicians, and to the ladies, on the motion of Mr. HARRY NUTTALL, seconded by Mr. T. BARNINGHAM, and heartily supported.

Mr. SNADDON responded.

The 546th Meeting of the Society was held at Raynor Croft, Green Walk, Dunham, on Saturday, June 16th, 1900, at 6 p.m. The Rev. S. A. STEINTHAL in the chair.

The members met at Altrincham Railway Station, and were led to St. Margaret's Church, which was visited, thence through Dunham Park, entering at Park Gate, by the Noll, and out by the gate opposite to Green Walk. The geology of the district was described, and a short historical account of the district, and particularly of the park and its various owners, and the objects of interest, were pointed out.

The party proceeding to Raynor Croft were very kindly received by Mr. and Mrs. Harry Nuttall, in their beautiful garden.



MR. HARRY NUTTALL,

Vice-Chairman of the Council of the Manchester Geographical Society.



WEST AND SOUTH FRONTS, RAYNOR CROFT.



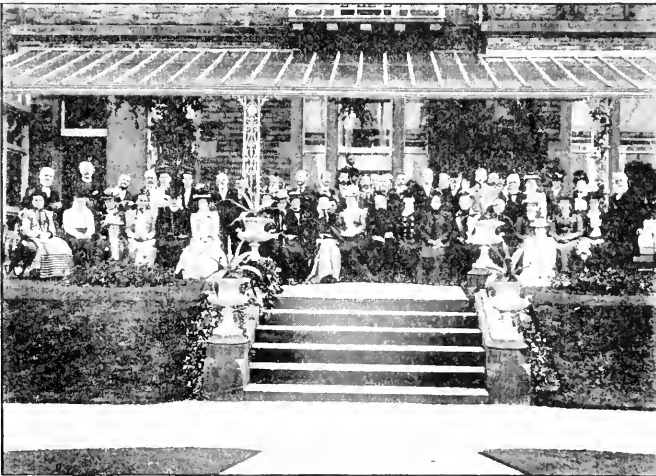
FROM THE GARDEN, RAYNOR CROFT.

Refreshments having been partaken of, bountifully provided by Mr. and Mrs. Nuttall, Mr. FREDERIC HOYLE, M.B., Ch.B., Viet., addressed the members on a voyage he had recently completed in Chinese and Japanese waters.

Many questions were asked, to which Mr. Hoyle replied.

The SECRETARY moved a vote of thanks to Mr. Hoyle for his interesting address. Mr. J. HOWARD REED seconded the motion, which was carried, and Mr. Hoyle responded.

The CHAIRMAN then moved, Mr. J. J. COTTRILL seconded, Mr. R. WADE and others supported, a resolution, which was carried, that the best thanks of the Society be given to Mr. and Mrs. Nuttall for their kind and hearty reception of the members in this beautiful pleasure.



ON THE TERRACE, RAYNOR CROFT.

Mr. NUTTALL responded.

During the afternoon some photographs were taken by Mr. Harry Sowerbutts and Mr. James Wilde, which are of some interest.

The 547th Meeting of the Society was held in the Engineers' Drawing Room of the Lancashire and Yorkshire Locomotive Works, at Horwich, on Thursday, June 21st, 1900, at 5-30 p.m. In the chair, Mr. J. D. WILDE, one of the Honorary Secretaries.

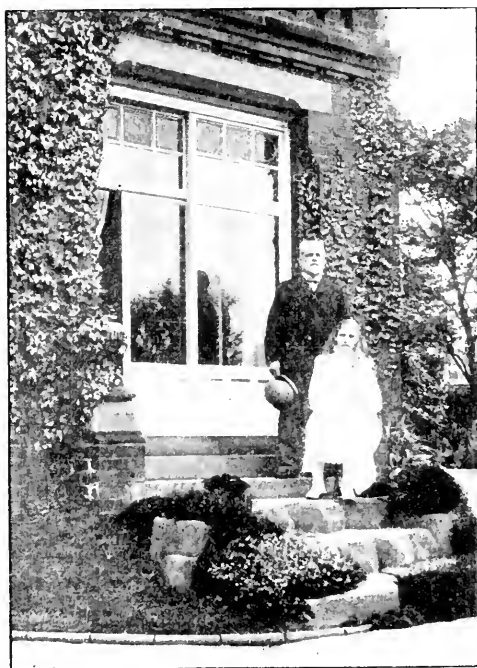
A large party of members responded to the invitation to visit these works, and on arrival the party was divided into four sections, who were each very courteously guided through the works. The parties were all struck with the completeness of the works, and the very healthy conditions under which the work was done. They followed the course of the raw metal in all the stages until a complete and huge monster of a finished locomotive

was before them. One of the most interesting departments shown was the one engaged in providing the signal arrangements for the entire line.

The Rev. W. POPPLEWELL moved a most hearty vote of thanks to the directors of the company for their kind permission to visit the works, to the engineer for his kind reception of the members, and to his assistants for their careful guidance and the information given to this large party of members. Mr. W. HARPER seconded the resolution, which was supported by Mr. ROTHWELL and others, and carried.

The ENGINEER responded, and expressed his pleasure in helping the members to understand more fully the enormous work needful in one department only of a great railway.

The members departed in a smart thunderstorm and shower, and were glad to reach the railway carriages. The party arrived home in good time.



MR. JOEL WAINWRIGHT AND HIS GRANDDAUGHTER.
The Dining-room Angle, "Finchwood," Marple.

The 548th Meeting of the Society was held at Finchwood, Marple Bridge, on Saturday, June 30th, 1900, at 6 p.m. In the chair, Mr. J. HOWARD REED.

A large party of members responded to the invitation of Mr. Joel Wainwright, J.P., to visit Marple, and were met at the station by him.

On this occasion Mr. Wainwright took the party through Marple, and pointed out the points of interest about and around the village, finally

leading the party to Finchwood, where generous provision had been made by him and his sister, which was heartily enjoyed. After tea, Mr. Wainwright gave great delight by exhibiting a number of etchings made by Mr. James Nasmyth, of the Bridgewater Foundry, Patricroft, many years ago, and with whom Mr. Wainwright was familiar.

The SECRETARY then read a paper, contributed by Mrs. Unsworth, a corresponding member in China, on her experiences in Hong Kong. The Secretary called attention to the large amount of information on China in the Journals of the Society.

Mr. WAINWRIGHT moved a vote of thanks to Mrs. Unsworth for her delightful paper, which was seconded, and carried.

CHINA.

The following interesting papers, addresses, etc., have appeared in the Journal of the Society, and will well repay perusal by the members:—

- Geography of Western China. I., 138.
- China an Unsolved Riddle. I., 138, 139.
- China Foreign Trade. II., 132.
- Mantchouria. Consul Gardener. II., 132.
- Mantchouria. Mr. E. H. M. James. III., 105.
- Railway Connection between Burmah and China. Mr. A. R. Colquhoun. III., 141.
- Geography and Trade of China. Mr. A. J. Little, F.R.G.S. III., 1.
- In these two papers much information as to the Yang-tse is given.
- Coins of China (16 pages of illustrations). By Consul Gardener. V., 233.
- Peking and the Pekingese (with native plan of Peking). By Rev. Geo. Owen. V., 1.
- Travel from Shanghai to St. Petersburg. Mr. J. M. Molesworth, C.E. V., 36.
- Rival Routes to China. Mr. H. S. Hallet, M.Inst.C.E. V., 80.
- Navigation of Yang-tse and Mr. Little. V., 201.
- Railway Extension: Imperial Decree. V., 386.
- Opening of Yang-tse to Navigation. Mr. A. A. Krause. VI., 36.
- Li Hung Chang: Portrait. VI., frontispiece.
- Li Hung Chang. By Rev. F. Galpin. VI., 35.
- A Mountain District of Central China (S.W. Ichang). By Mr. E. G. Hellier, of Tientsin. VI., 370.
- Secret Societies and Trade Guilds of China. Consul F. H. Balfour. VI., 40.
- China's Tribute to the Dead (the dead hand). Rev. F. Galpin. VI., 209.
- A Journey in Western China. M. Rosthorpe. XII., 59.
- Life in China. Rev. F. Galpin. XII., 274.
- The Panacea for China. Consul G. M. E. Playfair. XV., 65.
- China. By Mrs. A. J. Little. XIV., 361.
- The Geography of China. By Consul T. L. Bullock. XIV., 113.
- China and its People. By Professor Douglass. X., 290.
- The Holy City of the Manchus (Muckden). X., 325.

The camera was used on this visit, and we give two views of Finchwood.

Mr. R. WADE moved a very hearty vote of thanks to Mr. Wainwright and his lady helpers (particularly to the Princess), for his guidance, for his

generous hospitality, and for the ladies' great kindness. Mr. GREGORY seconded the motion, which was heartily supported, and carried.

Mr. WAINWRIGHT responded, expressing great pleasure at being able to receive members of the Society from time to time.



"FINCHWOOD," MARPLE. FROM THE ROSE GARDEN.

CONFERENCE WITH AFFILIATED SOCIETIES.

A meeting of the Victorians and the Secretaries of Affiliated Societies was held at the County Hotel, Lytham, on Saturday, July 14th, 1900, at 3 o'clock.

Previous to this meeting, a party of the Victorians visited Fairlawn, and presented to Mr. and Mrs. E. W. Mellor a number of photographs. These were presented by the Victorians to Mr. and Mrs. Mellor on the occasion of their wedding, and as a slight evidence of regard to Mr. Mellor for the disinterested work he has done for them and for the Society in various ways.

Mr. and Mrs. Mellor expressed their surprise and great gratification at the gift from their fellow Victorians, which would be highly valued.

Mr. Mellor presided at the after meeting.

The meeting was very successful in the attempt to bring together the secretaries of societies connected with the Society and engaged in mutual work. It was found to be a useful meeting in reference to making engagements with various Victorians for the ensuing season, and a considerable amount of useful discussion took place, which will have good results in future. The feeling of the meeting was that it would be well if these gatherings could be continued.

The question of the larger use of the Society's collection by the affiliated societies was brought forward and considered.

Very hearty thanks were given to Mr. Mellor for presiding.

The 549th Meeting of the Society was held at the new Manchester Technical Schools, on Saturday, July 7th, 1900, at 2-30 p.m.

The members were received by Mr. Alderman Hoy and Mr. J. H. Reynolds, and were conducted through the building, which is now approaching completion.

The following contributed article to the *Evening Mail* gives a very fair summary of the remarks of Alderman Hoy and Mr. Reynolds:—

THE NEW MUNICIPAL TECHNICAL SCHOOL.

Mr. J. H. Reynolds, the Director of the Municipal Technical School, informs us that the new Municipal Technical School now in course of erection on land formerly occupied by the engineering works of the late Sir Joseph Whitworth, Bart., was begun on the 25th July, 1895. It is intended to take the place of the Technical School in Princess Street and six branch buildings in its immediate neighbourhood. The building, which is after the designs of Messrs. Spalding and Cross, of London, occupies about 6,500 square yards, and it is six floors in height. It is in the style of the French Renaissance of Francis I., freely treated, and is a notable addition to Manchester architecture. It is built in Accrington brick, with Burmantoft terra-cotta dressings. Its main entrance is also treated in terra-cotta, with an imposing granite base, which forms a specially fine feature of the main façade. Its plan is that of a parallelogram, having two large internal areas of 55 feet by 77 feet, which light the internal corridors, the main entrance and examination halls, and the great chemical laboratory. All the class-rooms are lit from the outside.

The school is designed to give scientific and technical instruction in the engineering, textile, chemical, and the chief minor industries of the city and district. It will be equipped on a most effective scale, so as to provide the means of thorough investigation and research in all things which will promote the improvement and development of these industries, and, with a view to provide efficient education in the various branches of the great electrical engineering industries, the committee have arranged for an electric power generating station within the school.

The site of the building was given by the legatees of the late Sir Joseph Whitworth, who also added £5,000 for equipment. The Corporation also gave the land formerly known as Rifle Street, which was added to the site. In addition to these gifts, upwards of £14,000 was given by the guarantors of the Royal Jubilee Exhibition out of the profits of that undertaking. The Corporation also quite recently bought a plot of land opposite to the school in Sackville Street and Whitworth Street, which is to be reserved as an open space, in order to give a better view of the building.

The estimated cost of the building and equipment, exclusive of the land, is upwards of £200,000, and it is expected that the building will be ready for occupation in September, 1901.

The fine proportions of the new Municipal Technical School, as viewed from the outside, have for some time been the object of considerable interest to the citizens, but now that it is possible to walk along its extensive corridors and view its various rooms, the interest in the fine building, next to the Town Hall the most considerable in the city, has greatly increased, the excellence of its planning being a matter of common and appreciative observation. Perhaps the most remarkable feature of the building is the unusual amount of light, resulting from the style of architecture adopted, and the treatment of the window spacing, which characterise the various rooms. Another feature hardly less interesting is the dignified entrance leading through the fine entrance hall to the main staircase. When complete, with its chequered floor of black and white marble, its stained glass, terra-cotta windows, and fine examples of antique statuary, this hall will strike a note of beauty which will do much to educate and inspire the taste of the students.

THE EXAMINATION HALL.

The great examination or public hall, designed to seat some 700 or 800 persons, with its fine vaulted ceiling and lofty windows, is also a handsome apartment, which it is hoped may often be the scene of addresses of a public character, bearing upon the industrial and social well-being of the city. Above it is a room of the same area, designed for a chemical laboratory, lined with glazed white brick, lofty, and well lighted, and of which it is not too much to say that no laboratory in this country will exceed it in convenience and adaptability to scientific and technical purposes. Close to it is the great chemical lecture theatre, seated for 250 persons, with a vaulted ceiling of very effective design.

THE ELECTRIC LIGHT INSTALLATION.

The wood-block floors are being rapidly laid down, and the extensive work of installing the leads for electric light and power is proceeding apace. This latter work the committee are doing themselves, and with a view to the educational advantage to be derived therefrom, have arranged within the school itself for the generating of the electric current required. With this object they will equip the electric generating station with a Willan's 100 kilowatt engine, with a Bruce Peebles dynamo; a Browett and Lindley 100 kilowatt engine, with a Mather and Platt dynamo; a Marshall and Sons' 100 kilowatt engine, with a Scott and Mountain dynamo; a Robb 100 kilowatt engine, with a Dick Kerr dynamo; a Parson's 60 kilowatt turbo generator and dynamo. This will enable the committee to give under suitable conditions and proper supervision the opportunity to selected students of some experience in the management of electric light stations analogous to that required for small towns. The amount of current will be equal to 2,500 16-candle power lamps for lighting, and for power about 650 horse power. So far as possible, every appliance and machine used in the institution will be made the subject of test, and so arranged that accurate quantitative experiments can be performed upon them to determine the power consumed and the work done by them under varying conditions.

THE BLEACHING AND DYEING DEPARTMENT.

Already it has been found desirable, with a view to the better accommodation of the department of bleaching, dyeing, printing, and finishing, to remove it from the upper floor of the new building to the ground floor of a new site in Whitworth Street, separated only some thirty yards from it. The equipment of this department will be such as to present the chief productions of the best known forms in the district.

This site, comprising some 1,284 square yards, has been purchased from the Improvement Committee, and will certainly enable the work of this department to be done with much greater efficiency. With a view to increase the amenities of the neighbourhood, and to afford the opportunity of giving adequate space from which to view at least the Whitworth Street elevation, the Open Space Committee of the Corporation has bought a large piece of land in Sackville Street and Whitworth Street, which will be laid out as a garden. It says much for the appreciation of the work of the Technical Instruction Committee that the Corporation should have been willing to embark upon such a considerable expenditure in the purchase of this plot of land, the possession of which will not only enhance the appearance of the Technical School, but which will give similar advantages to the new Central School, which flanks it on the north side.

THE ENGINEERING EQUIPMENT

of the school promises to be one of first-rate importance. A 15,000 gallon tank, 120 feet from the basement level, will supply a lead of water for hydraulic experiments through a 12 inch main pipe, carried to a specially designed brick receiving basin, and thence by means of a specially constructed channel to a system of weirs, designed to measure the flow of water and its efficiency in relation to various types of hydraulic machinery. An experi-

mental steam engine, of 350 indicated horse power, constructed so as to admit of a wide range of experiments, is now in course of building by Messrs. Jas. Carmichael and Company Limited, of Dundee.

The boiler equipment will comprise boilers of various type, such as those of the Wilcox-Wabersch Company, the Palmer Shipbuilding Company, and those of Admiralty type, by David Rollo and Sons Limited, of Liverpool. Gas, oil, and hot air engines of special design and construction, upon which researches of special interest will be made, will form part of the equipment, thus giving to those engaged in the construction of prime movers of various types the opportunity of close study of the chief points of interest and value in these converters of heat into power. The strength of materials will form a special feature of the work of the school, and there is in course of construction a 50-ton testing machine, accumulator and pumps, and proving weights by Buckton, of Leeds, and other various types for making tests of iron and other metals, brick, stone, cement, timber, under varying stress and conditions, and as required in tension, compression, and torsion. The Electrical Engineering Department of the school, and electrical developments generally, having regard to their great and increasing importance, are receiving the most serious consideration of the committee, with a view to their most efficient equipment.

THE TEXTILE BRANCH.

In the textile branch of the school the committee have made a most careful selection of the best types of machines from various makers, some of whom have generously placed them at the committee's disposal free of cost. These appliances are now in course of construction, and will, like the other appliances required in the school, be delivered in the course of the spring of next year, ready for the opening of the school, which it is intended shall be in September, 1901.

The total value of the equipment will approach £60,000, which, when spent, will go far to place the school in the very first rank of technical institutions in this country, and should go far to remove the reproach, so well founded hitherto, that there is no adequate training available for those who are designed to take leading positions in our great staple industries. But one thing remains to make this great school really successful, namely, an adequate supply of duly prepared day students. It is in this respect that continental countries and the United States are so far in advance of us in scientific and technical training, which advantage has, without doubt, made them such formidable rivals, and which promises to give them a lasting pre-eminence over us in the great manufacturing industries.

The welcome to the members of the Society was very cordial, and much trouble was taken to show and explain to them the arrangements and methods of the new school.

Dr. Worswick moved a very hearty vote of thanks to Alderman Hoy and Mr. Reynolds, which, being seconded, and supported by many members, was passed unanimously, and responded to by Mr. Reynolds.

We hope to visit the building again when it is completed.

The 550th Meeting of the Society was held at King's Restaurant, Derby, at 6 p.m., Wednesday, July 24th, 1900. The Rev. S. A. STEINTHAL, F.R.G.S., in the chair.

The members travelled to Derby in a Midland saloon carriage, and arrived at Derby in good time. On arrival lunch was had at King's Restaurant, and several carriages then conveyed the party to Kedleston Park and Hall. The party was very kindly received, and the hall gardens and the ancient church were shown with great care. Several hours were spent in this delightful old world survival, and the time was very quickly gone. On returning to Derby, the party was met by the Right Honourable and Reverend the Lord Scarsdale, who very kindly inquired if the party had

been pleased with their visit, and expressed disappointment that he had not been at the house. This hall has not been usually open to inspection, but this year a special exemption has been made, for the purpose of helping the Calcutta Fund, raised to help the famine-stricken natives of India. His Lordship informed us that he had been able to forward more than £3,000. The members were pleased that they had an opportunity of helping this great act of mercy. The carriages then conveyed the party to the Crown Derby Works, in Osmaston Road, passing on the way the fine Church of St. Mary's, celebrated as the final resting place of the great Cavendish builder in the Peak of Derbyshire.

The following report, from the *Daily Dispatch*, July 31st, is an interesting note. The photograph of the building is by Mr. James Wilde:—



ENTRANCE TO "ROYAL CROWN DERBY" WORKS, OSMASTON ROAD, DERBY
(The Old Workhouse).

DERBY CHINA.

A VISIT TO THE FAMOUS POTTERY.

In the visit that the Manchester Geographical Society made to the works of the Royal Crown Derby Porcelain Company Limited, at Derby, recently, much was shown to convince the visitors that the potter's art is there to be seen in its highest state of perfection, or, at all events, that the aim of the concern is to maintain the highest possible standard of excellence.

Derby ware has had many ups and downs. It has had the curious experience of an untimely death and a singularly happy re-awakening, under auspices so encouraging that it promises once again to be in world-wide request. As far back as 1750 the ceramic art was practised with considerable success in Derby, but it was not until 1764, when the Chelsea works were removed to Derby and incorporated there, that the place began to assume a marked distinction for the production of porcelain. Chelsea ware

had of itself earned an enviable fame, particularly between the years 1750 and 1755, when the demand was so great that dealers flocked to the works and purchased the pieces so soon as they were fired.

At this time a service of Chelsea china, produced for a Royal present, cost £1,200. It was in these same works that Dr. Johnson tried his 'prentice hand, only to discover that, however facile he might be in other matters, clay moulding was beyond him. It can therefore be understood that the junction of the better features of Chelsea ware with those of Derby brought out a composition that proved highly valuable, so valuable that at one time the suggestion was made that silver plate and Derby porcelain were of a price.

The output of the works came to be known as Chelsea-Derby, and in later years the pieces became so rare that fabulous prices were paid for them by collectors. In 1855 a pair of scalloped Chelsea vases, with painted birds, brought £110 5s. At Sir John Macdonald's sale, in 1850, a pair of Chelsea cups and saucers were sold for £36 15s. In 1870 an old Chelsea vase and covers and a pair of vases and covers fetched the handsome return of 355 guineas.

From 1769 down to 1811 the Derby Works may be said to have passed through a period of uninterrupted and ever-growing success. The great period, known as the Crown Derby period, was probably between the years 1785 and 1811. At that time it may safely be said there was no more famous make of ware in Europe. Then followed a process of decay, and final death about 1849, when most of the workmen migrated to Staffordshire. Although in the bigger sense the business was dead, it was still carried on in a fitful sort of way, which led to a determined attempt at the resuscitation of the industry in 1877. This attempt proved highly successful, developing, eventually into the organisation and equipment of the present extensive works.

The extent of the works may be guessed from the fact that between 300 and 400 hands find constant employment in them. A turn through the works tells you at once that they had served the purpose of a workhouse in their day, notwithstanding the fact that the corridors and wards have been admirably made, to suit the more interesting needs of the present occupants. You are not long, also, in realising that hand-craftsmanship reigns supreme, and that the boy still turns the wheel as in the good old days of the lexicographer. There is much dry routine connected with the different processes, but on the whole the class of work produced must have an elevating tendency on the operatives, particularly if there is any trace of the artistic temperament in them. They cannot all be engaged on the beautiful things. Some must do the drudgery, and in the main the lighter drudgery appears to devolve upon girls, and the heavier on the men, as also the finer work of design and hand-painting.

Thus the place presents the curious anomaly of clay baking in the way of our fathers, with the modern method of specialisation thrown in and adapted to the circumstances. That is to say, no one operative handles a piece of porcelain from its initiatory to its finished stage. Each does a part towards the whole. Some have a very mechanical and some a highly-skilled operation to perform. Generally the simple work is done by girls, the higher by men. In this latter class may be mentioned the pretty colouring and effective figuring found on the highly-finished pieces. And, strange to say, the best market the factory has for its finer work is the United States of America, where a very fine and extending connection appears to have been formed. If, therefore, the Americans can teach us many things, it is very pleasing to be able to note that they are not altogether in the position of monopolists.

But it was felt that a works specially built would be more conducive to the prosperity of the company. The old workhouse will serve, but it must be changed for other and better arrangements.

The company presented each member with a very interesting handbook and guide to "Crown Derby" pottery, and many members brought away souvenirs of pottery, and all came away with grateful thanks for the kindness shown.

Mr. Stromeier moved a very sincere and hearty vote of thanks to the Right Honourable and Reverend Lord Searsdale for his permission to visit Kedleston out of time and at some inconvenience to his Lordship; to the

servants of his Lordship, for their courteous kindness; to our leader and photographer, Mr. Boyes, of Derby; to the Board of the Royal Crown Derby Works; to Mr. King and to Mr. Freeman, for their valuable assistance in making the visit to Derby charming and instructive, and for all the kindness shown to the members.

Mr. Frank Curzon, of Leeds, seconded the motion, and Mr. J. C. Blake and several other members having supported, the motion was carried.

The party then went to the station, and all arrived home in good time.

The 551st Meeting of the Society was held in the Mayor's Parlour, Town Hall (by permission of the Lord Mayor), on Friday, August 3rd, 1900, at 3 p.m.

In the unavoidable absence of the Lord Mayor, the chair was taken by Mr. HARRY NUTTALL, Vice-Chairman of the Society.

The Chairman moved that the very sincere sympathy of this Society should be forwarded to the Ambassador of Italy on the sad death of the late King, and to His Royal Highness, the President of the Society, on his illness.

Both motions were carried in silence.

Mr. JOHN AINSWORTH, C.B., addressed the Society on "Ukamba." Mr. Ainsworth is Her Majesty's Sub-Commissioner and Vice-Consul for the Province of Ukamba, in British East Africa, at home on furlough. He is a Manchester man, and a member of this Society. He has previously sent contributions of curiosities to the Society, which adorn the Library, and papers of much interest. Whilst in charge of his district he has been visited by other members of the Society, and was able to give their caravans much help. He has done valuable work as Administrator of the province. The railway runs through the province, and his long services in the country have given him opportunities to obtain a great amount of valuable knowledge of the country and the people. Mr. Ainsworth exhibited a number of enlarged photographs taken by him in his district, and many native products.

His address was listened to with great attention, and many members asked questions, and expressed their pleasure in hearing so useful and delightful an address.

Very hearty thanks were given to Mr. Ainsworth, on the motion of the Very Reverend L. C. Casartelli, M.A., Ph.D., seconded by Mr. J. H. Reed, and supported by Mr. W. Bond, and others, for his address, and to the Lord Mayor for the use of his room.

Mr. AINSWORTH responded, and he was then surrounded by questioning members for some time.

The 552nd Meeting of the Society was held in the Library, on Tuesday, October 16th, 1900, at 7-30 p.m. Mr. HARRY NUTTALL in the chair.

The Minutes of the previous meetings of the Society were read and approved.

The following correspondence was submitted:—

Messrs. T. Armstrong and Brother, Colonel J. J. Mellor, Mrs. Zimmern, Mr. T. Hoyle, Mr. R. Stewart, Captain H. H. P. Deasy, Messrs. Henry Gaze and Sons Limited, Mr. Edward W. Mellor, Mr. F. J.

Boyes, Mr. John Ainsworth, C.B., Rev. S. A. Steinthal, Mr. J. Mather, Mr. H. Nuttall, Mr. Kenneth Mackenzie, Councillor D. Healy, Mr. A. L. Fedotoff, Mr. James D. Wilde, Councillor W. Healey, Miss E. Kollitz, Mr. C. H. Bellamy, Messrs. J. T. Chapman, Miss Ada Baxendell, Messrs. Dean and Dawson, Mr. E. T. G. Hatch, M.P., Rev. Thos. Wakefield, Mr. A. P. Bowes, Miss Law, Mr. F. Rigg, Mr. E. J. Kennedy, Alderman I. Bowes, Miss C. Marsden, Mr. John R. Newby, Mr. E. V. Bowes, Mr. E. W. Cowan, Mr. F. J. Boyes, Major Ballantine, Mr. C. H. Brumm, Mrs. E. Schofield, Mdlle. Blanchoud, Miss J. Crowther, Dr. W. G. Black, Mr. Joseph Jones, Mr. John Thorpe, Mr. J. Howard Hall, Mr. Matthew B. Slater, Mrs. Dentith, Mr. E. Widdows, Mr. Walton Brown, Mr. N. Kolp, Mr. J. Howard Reed, Mrs. Steinthal, Mr. H. J. Mackinder, Dr. Carl Peters, Mr. Arthur South, Mr. T. H. Bramwell, Mr. Frank Curzon, Mr. H. Nuttall, Mr. E. W. Greg, Mrs. Leech, Mr. H. Caress, Mr. F. W. Howell, Mr. J. C. Blake, Mr. Fredk. Y. Birch, Mr. J. G. Colmer, Mr. C. A. Clarke, Col. E. Carlile, Mr. J. K. Jacques, Mr. T. F. Nicholas, Mr. G. H. Lawton, Mr. H. A. Hay, Mr. W. G. Groves, M.P., Mr. T. Connolly, Mrs. Greg.

The election of the following members was announced:—

ORDINARY.—Mr. E. F. Heidenreich, Mr. Edward D. Mitchell, Mr. J. Bancroft, Mr. Richard Meredith, Mr. Herman Geiler, Alderman Jas. Hoy, J.P., Mr. A. J. Kennedy, Mr. E. Hoyle, Mr. William May, Mr. Henry Hilton Summerskill, Mr. J. F. Mottershead, Mr. P. Lloyd Rees, Mr. George Hadfield, Mr. Wm. Goulden Thompson, Mr. R. W. Swallow, B.Sc., Mr. G. A. Hartop, Mr. W. Telford Gunson, Mr. E. Challenger, Mr. Joseph Wilson.

ASSOCIATE.—Mr. G. G. D. Deakin.

AFFILIATED.—The Horwich Industrial Co-operative Society, The Chadwick Museum, Bolton.

CORRESPONDING.—Mr. Ferdinand Keifer, Moscow.

The following presentations were announced:—

Added to Library:—Map: Suez Canal. Published by Admiralty. 1876. Dower's General Atlas, Modern Geography. 50 maps. 1855. Cassell's General Atlas of the World. 62 maps. Phillips' New General Atlas of the World. 74 maps. 1853. Colton's Atlas of America. 63 maps. 1859. Fullerton's Companion Atlas of the World. By G. H. Swanston. 48 maps. Stieler's Hand Atlas. 1881. W. and A. K. Johnstone's Folio Atlas. Presented by the Royal Geographical Society:—Map. A Journey from Lake Naivasha to Victoria Nyanza. Map. The Baram District, Sarawak, Northern Borneo. Map. Patagonian Cordillera. Map. Chesterfield Inlet to Great Slave Lake. 1898-1899. Presented by the Delegates of the Press, Oxford:—Historical Atlas. Parts 25, 26. This fine historical atlas is now nearly completed. A further notice of the atlas will appear in the Journal. Presented by Geological Survey:—U.S. Geological Survey. Bulletins, 152, 162. U.S. Geological Survey. Monographs, xxxii. (part 2), xxxiii., xxxiv., xxxv., xxxvi., xxxvii., xxxviii. Presented by Alderman J. F. Wilkinson (Chemists' Exhibition):—"John Gutenberg"; Six Views of Manchester. Presented by Mr. Edwin Hibbert:—Map. "Imperial Romani. By H. Kiepert. 1869. Gilbert's Map of the World (Mercator). Presented by Mr. W. H. Cheetham:—A large collection of views of towns and figures. Added to Library:—Priors Zomme=Atlas over Danmark. F.R.M.S. "Cruises in the Mediterranean of H.M.S. Chanticleer during the

Greek War of 1824—26." By William Black, L.R.C.S.E., Surgeon to H.M.S. Chanticleer. Presented by the Author:—"The Fourth International Zoological Congress, held at Cambridge, 22nd—27th August, 1898." By Mark L. Sykes, F.R.M.S. Presented by the Publishers:—"A Souvenir of Manchester." By Messrs. A. and S. Walker. Presented by Secretary of State of India:—"List of Proceedings, etc., India, 1834—1858." Presented by Messrs. Dean and Dawson:—"Great Eastern Railway. "Royal Mail Route to Holland, Continent, *via* Harwich." Presented by the Royal Geographical Society:—"Map. The Country between Lake Chinta and River Luli, British Central Africa, from a Survey by Captain F. B. Pearce. Presented by Mr. Agar:—"Portraits: Fine steel engravings of Dr. Dalton and Mr. Richard Cobden. Ireland.—With a view to Irish excursions, letters were sent to the Irish Railways and others, and the following list of papers have been received, which contain the fullest information for the members in a very pleasant way. Some of the guides are beautifully got up. Mr. Meeredy's books are very valuable for tourists and cyclists:—"Great Northern Railway Company of Ireland: Time Tables, 1900; Tourist and Excursion Programmes, 1900; Northern Ireland; Vale of Boyne and Royal Meath; List of Seaside and Country Houses and Furnished Lodgings, 1899; Health Resorts and Pleasure Excursions; A Drive in Donegal; Seaside Resorts; Bandon, and a Guide and Descriptive Handbook to Bandon and the Surrounding District of the North-West. The Midland Great-Western Railway of Ireland: Time Tables and Tourist Programme, 1899. The Great Southern and Western Railway of Ireland: Time Tables, 1899; Tourist Programme, 1900; and the Lakes and Fjords of Kerry. The Cork, Bandon, and South Coast Railway Company: Time Table and Tourist Programme; Prince of Wales Route to Glengarriff and Killarney. The Cork and Macroom Direct Railway: The Tourists' Route to Glengarriff and Killarney. "The Irish Cyclist." Mr. R. J. Meeredy. Meeredy's Road Book of Ireland, vols. i., ii. Meeredy's Road Map of County Kerry. Meeredy's Road Map of County Donegal. Meeredy's Road Map of Dublin and Wicklow. Meeredy's Road Map of Connemara. By Mr. George Thomas: *Le Livre d'or de l'Exposition*, Nos. 1—20. These numbers give a very graphic pictorial description of the great works of the Exhibition at Paris. United States Geological Survey: Nineteenth Annual Report. Part 3, Economic Geology, 786 pp., with many fine illustrations and maps. Part 5, Forest Reserves, 400 pp., with many fine illustrations and an atlas of maps. Twentieth Annual Report. Part 1, Directors' Report, including triangulation and spirit levelling, 552 pp. Maps. United States Department of Agriculture and Weather Bureau: Report on the Kite Observations of 1898. Plates and diagrams. *Scientia—La Spéléologie*, par E. A. Martel, 126 pp. Illustrations. From Georges Carré et C. Haud, Paris. Prix 2 francs. *Aperçu des "Meddelelser om Grönland," 1876—1899*, by Thovald Kornerup. C. A. Reitzel, Copenhagen, 1900. 62 pp. Map. *Estadística Judicial, 1897-1898*. La Paz Columbia, 1900. 92 pp. From Senor Ballivián, Director. China. 58th issue Medical Reports, Shanghai. 78 pp. The Plague. *Movimento dello stato civile, Anno 1898*. Introduzione, 78 pp. Roma, 1900. Senor L. Bodia. Maps: The Cordillera Real Bolivia, 789 miles to an inch. Chinese Shan States. Royal Geographical Society. Presented by Dublin, Wicklow, and Wexford Railway Company: Tourist Guide and Tourist and Excursion Programme. Season 1900. Presented by the Cheshire Lines Railway Company: Excursion Programme to Ireland, May and June.

The Museum:—Mr. Harry Nuttall: Specimens of cob corns and of Californian and Oregon wheat. Enlarged photographs from Mr. James Wilde: Dovedale, The Watchbox, The Canal, Llangollen. Mr. Harry Nuttall: Mixed American maize.

Mr. W. W. MIDGLEY, F.R.Met.S., of the Chadwick Museum, Bolton, addressed the Society on the "Flora of the Carboniferous Rocks," and illustrated his address with a number of fine lantern views.

Mr. H. J. GILL, of Owens College, moved a vote of thanks to Mr. Midgley, and this was seconded by the SECRETARY, and carried.

Mr. MIDGLEY responded, and replied to some questions.

Thanks, heartily given, to the Chairman concluded the meeting.

The 553rd Meeting of the Society was held on Tuesday, October 23rd, in the Library, at 7-30 p.m. In the chair, the SECRETARY.

The Minutes of the previous meeting were read and approved.

Letters, enclosing donations to the Society, were read from Mr. George Thomas, £1; Mrs. M. Greg, £5. The thanks of the Society were given to these donors.

The following presentations were announced:—By the High Commissioner for Canada: Canada, Descriptive Text Book, by E. R. Peacock, M.A., 1900. Klondike Official Guide, by W. Ogilvie, 1898. Prelim Report on Klondike Gold Fields, 1900. Ten Minutes' Talk about West Canada, 1899. British Settlers in West Canada. Presented by the Agent General: Supplement to Government "Gazette" of West Australia, No. 42.

The election of the following new members was announced:—

ORDINARY.—Mr. E. Johnson, Mr. R. H. Joynson, J.P., Mr. John Louden, Mr. Jas. Leigh, Mr. I. P. Carson, Rev. P. Read, Dunsear, Mr. E. Geotz.

The SECRETARY read "Notes on the Famine in India."

Mr. J. J. GLEAVE addressed the Society on "The Upper Yorkshire Valleys."

THE FAMINE IN INDIA, 1899-1900.

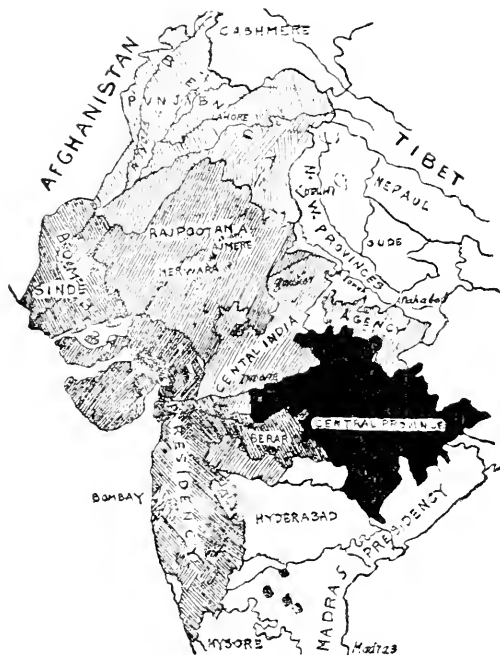
The war in South Africa, and more recently the General Election, have served to obscure the terrible needs of the famine districts of India. There has been issued by the Reform Press a pamphlet "Stricken India," which not only sets forth the dire straits to which the Indian peasant is reduced, but seeks to overcome the apathy of the British people, and to induce the subscriptions to flow more freely. We reproduce from this pamphlet a map of the famine districts, and some of the information which is to be found in its pages.

Within the last 25 years there have been three great famines in India, each successively pronounced to be the worst of the century. The following figures show the appalling and increasing severity of these famines:—

	Area Affected in Square Miles.	Population Affected.	Maximum Number on Relief.
1877	257,000	58,000,000	3,250,000
1897	450,000	61,500,000	4,250,000
1900	700,000	90,000,000	6,266,000

In 1877 the number of deaths was five and a quarter millions in excess of the ordinary death-rate; there was, in addition, an estimated loss of fully two millions on the birth-rate, so that the population decreased by upwards of

7,000,000 as a direct consequence of that famine. It was contended in 1897 that in spite of the greater severity of the famine of that year the mortality was less; but while in some provinces it was undoubtedly slight, in others it was very heavy. In the Central Provinces, for example, the death-rate was 69 per 1,000 over the whole province, as against the usual 33·5; and in Mandla, a district in the Central Provinces, the mortality rose to upwards of 98 per 1,000, or nearly one in ten. The mortality this year is appalling, and one shudders to think what the total is likely to be. It must be borne in mind that the figures given above refer to areas and populations officially declared to be famine stricken, and to persons actually in receipt of Government relief; but a moment's reflection will show that even in the official famine areas the number of persons on relief must form but a small proportion of those suffering in a greater or less degree from shortness of food. We must also remember that there are districts where famine has not been



The famine areas are shaded; the degree of severity is indicated by the intensity of shading. The native States are shaded from right to left, thus ////.

officially recognised, but where wells and tanks have dried up and crops are short or lacking.

The famine now wasting the people not only followed hard upon that of 1897, but was preceded by the failure of two, and in some cases three harvests, so that the disaster fell when savings were spent and ordinary resources exhausted. Moreover, it has, unhappily, been followed by cholera, smallpox, and plague. The people who are lying waiting for death in these terrible forms are not the idle, shiftless, ne'er do well's, but the hardworking peasants, who, though poor, are, as a rule, industrious, frugal, and temperate. The Famine Commissioners testify that the people are reluctant to accept public charity, and show eagerness to recur to their own unaided labour for support at the earliest opportunity. The famine is not confined to those whose condition is one of chronic poverty; but it has reached those who but lately occupied good positions, and were looked upon as well-to-do. The famine-

stricken districts of India extend over so vast an area that they cover 700,000 square miles, or nearly nine times the actual area of Great Britain; the number of people registered on Government relief is upwards of six millions, or a million in excess of the whole population of that most crowded of modern cities—Greater London.

Apart from the first necessity of maintaining life in the able-bodied and starving, and succouring the disease-ridden, there is the future to face. The India Office has announced that three shillings will support a man for a month and ten shillings for nearly four months. Those who have not given to any of the charitable relief funds should hasten to give. No time should be lost. While one here is considering, a man there may die for want of that one particular helping hand. Those who have already given—and there are some poor people who have deprived themselves of what were really necessities, not luxuries, to give—should try to give again. The need is urgent. Much money is needed for charitable relief, as apart from the official Government relief, £5,000,000 would not be too much, but carefully expended in conveying food and fodder from the fertile districts, such as Burma and Bengal, to the places where there is no food for man or beast, it would instantly and appreciably alleviate the mass of suffering throughout the 700,000 square miles of famine-stricken India. Now that the rains have come in most parts, money will also be more than ever wanted to battle with the fevers that are intensified with the bursting of the monsoon. Plough oxen are wanted—are absolutely necessary—to replace the dead beasts, and seed grain must be forthcoming for the sowing. The people need clothes to cover them, and household utensils to enable them to take up the daily round of life once more. And beyond all this, alas! there are the hapless orphans who have survived this fiery ordeal, who need to be comforted, clothed, fed, and educated until they, poor fatherless and motherless little ones, are able to hold themselves.—*Preston Guardian*.

If we have the glory of empire, we also have the responsibilities, and surely one of them is to do the utmost in our power to help our stricken and suffering fellow subjects.

Mr. J. H. LEWIS moved a vote of thanks to Mr. Gleave, and supplemented his address with information in relation to Grassington and the neighbourhood. Mr. W. W. MIDGLEY seconded the resolution, and gave valuable geological remarks on the district. The motion was carried, and Mr. Gleave responded.

The 554th Meeting of the Society was held in the Library, on Tuesday, October 30th, 1900, at 7-30 p.m. In the chair, Mr. G. R. BOSWORTH.

The Minutes of the previous meeting were read and approved.

The following correspondence was submitted:—

Mr. Henry Ling Roth, Mr. W. E. Hoyle, Mr. F. J. Payton, His Grace the Duke of Argyll, K.T., Mr. J. C. Blake, F.R.G.S., Mr. Wm. Johnson, Mr. W. W. Midgley, Mr. J. Gerrard, Mr. R. W. Swallow.

La Paz, Marzo 28 de 1900.

Al Señor Presidente de la Sociedad Geográfica de Manchester.

SEÑOR,—Tengo la honra de comunicar á U. que la "Sociedad Geográfica" de esta ciudad que tengo la honra de presidir; ha renovado en su Sesión de 19 de los corrientes su Mesa Directiva, con el personal siguiente: Presidente, Señor Manuel V. Ballivián; Vice-Presidente, Señor Eduardo Ydiaquez; Secretario General, Sizto L. Ballesteros; Tesorero, José M. Camacho; Secretario, Bantista Saavedra; Bibliotecario, Luis S. Crespo.

Lo que tengo la honra de comunicar á U. esperando confiadamente que, las relaciones científicas mantenidas hasta hoy con ese ilustre Centro, con-

tinuarán bajo los mismos vínculos de comun aspiración por el creciente progreso de la Ciencia.

A provecho esta ocasión para ofrecer á U. las consideraciones de distinguido aprecio conque me suscribo.—Atto. y S.S.

M. V. BALLIVÁN.

The Manchester Geographical Society.

Monticello per Cortenova (Bosanza),
15 settembre, 1900.

ILLUSTREE CARO SIGNORE,—Nel giornale della Società, Vol. XVI., 1—3, Januario—May, 1900, a pagina 31, rubrica Examiner's Report, trovo un Casati Prize, assegnato a T. S. R. Reed. Sarebbe ella tanto cortese di soddisfare il mio desiderio d'avere notizia in proposito? Una sincera e cordiale stretta de mano á Sei, e mille cordiali auguri.—Dev. Aff.,

G. CASATI.

The following presentations were announced:—

Presented by Le Ministère des Cultes et de l'Instruction Publique:—Norway. Official Publication for the Paris Exhibition, 1900. Maps and many illustrations. Presented by the Author:—Exploration de la Mer sur les Côtes de la Belgique en 1899, par Professeur G. Gilson. (Extrait des Mémoires du Musée Royal d'Histoire Naturelle de Belgique, tome i.) Presented by Mr. A. J. Kennedy:—Trade Journal Review, Vol. xi., No. 2. July 14th, 1900. Presented by the Publishers:—Belgian State Railway and Mail Packet Service, Time Tables. July, 1900. Presented by the Author:—Yorkshire Caves (Victoria Cave, Ingleborough Cave, and Yordas Cave), by J. J. Gleave. Presented by Mr. George Thomas:—Royal Commission (British) for the Paris Exhibition, 1900. Official List of Exhibitors, Great Britain and Ireland, February 1st, 1900. Royal Commission (British) for the Paris Exhibition, 1900. Committees and General Classification of Exhibits, 1899. Presented by the Company:—Derby China, a souvenir, Royal Crown Derby Porcelain Company Limited, 1898. Presented by Southern Pacific Railway Company, per Mr. R. Falek:—Collis P. Huntington, Life and Work. Fully illustrated. Presented by Mr. C. W. Sutton:—Captain Glazier and his Lake, by H. D. Harrower. (New York Educational Reporter, Extra, October, 1886.) Presented by the Author:—Notice Explicative sur les Objets Exposée, par R. Rispologensky, à l'Exposition Universelle de 1900 à Paris. Kazan Université Imperiale. Presented by the Author:—Diseases of North Victoria, Cape Colony, 1853, by W. T. Black, M.R.G.S. Sanitary State of Capetown, 1877, by W. J. Black, F.R.C.S.E., S.M. Presented by the Agent General:—Supplement to Government Gazette of Western Australia (No. 36 M.S., No. 9). Mining Statistics, May, 1900. Presented by the Agent General:—Handbook of New Brunswick, 1900. Prepared by W. A. Hickman. Issued by authority of the Crown Land Department, Hon. A. P. Dunn, Surveyor General. Illustrated. Presented by the Author:—Royal Visits to Netley and Woolwich Hospitals, by Lieutenant-Colonel E. Rogers, 1900. Presented by the Publisher:—The "Monthly Review," No. 1, October, 1900. London: John Murray. Illustrated. Presented by Mr. R. D. Oldham, A.R.S.M., F.G.S.:—Memoirs of Geological Survey of India. Volume xxix. (An illustrated detailed account of the great earthquake.) Presented by the International Congress on Colonial Sociology, Paris, 1900:—Slavery and its Substitutes in Africa, by

Mr. H. R. Fox Bourne. The Claims of Uncivilised Races, by Mr. H. Fox Bourne. The Liquor Traffic in Africa, by Mr. H. R. Fox Bourne. The Aborigines Protection Society, its Aims and Methods, by Mr. H. R. Fox Bourne, the Secretary. Presented by the United States Coast and Geodetic survey:—Sixty-seventh Annual Report, 1897-8. Presented by the United States Department of Agriculture, etc.:—Trade of Puerto Rico, by Mr. F. H. Hitchcock. Trade of the Philippine Islands, by Mr. F. H. Hitchcock. Our Foreign Trade in Agricultural Products, 1894—1898 and 1890—1899, by Mr. Frank H. Hitchcock. Section of Foreign Markets, by Mr. Frank H. Hitchcock. Presented by Canadian Institute:—Transactions of the Canadian Institute, semi-centennial memorial volume, 1849—1899, Portraits and illustrations.

THE MUSEUM.—Presented by Mr. George Thomas:—Two pairs Alpargatas (Spanish Shoes from Andalusia), men's and women's. One Gourd and one pair of Shoes (Kavass) from Greece, Athens, 1900. One Russian Night Watchman's Rattle, 1879. One Turkish Inkstand (portable for travellers), and receptacle for pens. Beautifully engraved. One portable Turkish Coffee Grinder. One Turkish Copper Coffee Boiler. One Turkish Coffee Cup and Stand. Two pieces—Souvenirs from La Commune (fire at Hotel de Ville). Paris, 1879.

The SECRETARY addressed the Society on Bradford. The position of Bradford and the surrounding country—the rise and history of the town—its importance as a centre of the wool trade and of woollen manufacture—the old historic part of Bradford and the new Bradford, with its spacious parks and fine buildings.

The address was illustrated with maps, diagrams, and lantern slides, giving views of the town.

BRITISH ASSOCIATION.

The Secretary then gave his report as delegate to the British Association, whose meeting was this year held in Bradford.

The meeting was not a large one, and there was not much of particular interest. Perhaps the most important thing done was to arrange for another section on Education.

Some of the papers read in Section E were uninteresting, but the address of the President of the Section, Sir G. S. Robertson, K.C.S.I., was refreshing and important. Every member of the Society ought to read it.

Colonel Sir T. H. Holdich's paper on "Railway Connection with India," Mr. Beazley on "The Siberian Railway," Mr. T. G. Rooper, H.M.I., on "The Teaching of Geography in Elementary Schools," and Mr. E. R. Wetting on "Commercial Geography" were valuable contributions.

The Institution of Mining Engineers, Newcastle-on-Tyne, brought the question of copyright before the delegates, and it was referred to the General Committee of the Association.

The following letter and enclosure is important (only part of the report is here printed):—

TO THE PRESIDENT AND COUNCIL OF THE INSTITUTION OF MINING ENGINEERS.

GENTLEMEN,—I beg to report that I attended the meeting of the British Association for the Advancement of Science, at Bradford, as your delegate.

As usual, two Conferences of the Delegates of Corresponding Societies were held, on September 6th and 11th respectively, both of which I attended. At the former, the resolutions submitted by the Yorkshire Naturalists' Union relative to the mode of conducting the Conferences were brought forward, and discussed at length. I had been instructed by you to support these resolutions, and did so, but they were never put formally to the meeting. It was generally admitted on all sides that the Conferences, as at present conducted, are of but little value to the Corresponding Societies, and it was suggested that the fault lay largely with the societies themselves, in that they did not propose subjects of general interest suitable for discussion at these Conferences.

A motion was then submitted by Mr. M. Walton Brown, and seconded by Mr. Sowerbutts, to the effect that the Council of the British Association be requested, through the Committee of Recommendations, to take proper steps for the protection of the Corresponding Societies in the matter of securing their copyright in their publications. I strongly supported this resolution, which was carried unanimously. I attended the meeting of the General Committee on the 12th, when the report of the Committee of Recommendations was received. To my surprise, no reference was made to this matter of copyright, and on inquiring of one of the general secretaries, I was informed that the resolution had never been sent up from the Conference of Delegates. I had been unable at the second Conference, on the 11th, to ascertain that this resolution had not been duly sent up, because no minutes of the proceedings of those Conferences are kept. I have thought it advisable to report on this matter fully because the copyright question is one of serious importance to this Institution, in common with other scientific societies. It is also obvious that the unbusinesslike mode of conducting these Conferences renders it hopeless to expect any results of real utility to the Corresponding Societies, and the practice of dispensing with a minute book, however convenient it may be for covering irregularities in procedure, effectively prevents any chance of useful work being performed. I need not add that in my opinion the entire system of conducting these Conferences urgently needs reform.

At the second Conference, on the 11th, a discussion took place on "Dew Ponds," and the recommendations from the various sections to the Conference were laid before the meeting. The only two that might interest this Institution were a request for photographs of geological interest, and one for boulders that presented any unusual features, both from Section C.

Many papers of interest to mining engineers were read.

Section G, which has hitherto borne the title of Mechanical Science, will henceforward be known as the Engineering Section. Under its new name it will no doubt appeal more directly than hitherto to mining engineers, and it may be hoped that papers on mining engineering will be forthcoming.—I am, gentlemen, yours obediently.

September 14th, 1900.

HENRY LOUIS.

18th September, 1900.

DEAR SIR.—I annex copy of resolution passed unanimously at the Conference of Delegates of Corresponding Societies, at the meeting, on Thursday, September 6th. This resolution was moved by Mr. M. Walton Brown, representing the North of England Institute of Mining and Mechanical Engineers, and seconded by myself, representing the Manchester Geographical

Society. A copy of the resolution was handed to the Chairman, and he directed the reporter to incorporate it in his notes of the meeting.

I am informed that this resolution has not been communicated to the Committee of Recommendations, and, consequently, has never come before the General Committee. (This has since been brought before the General Committee of the British Association.)

As the matter is of considerable importance, and cannot be deferred until September, 1901, I must press you to bring the resolution before your Council at their first meeting, and urge that action be taken at once.

RESOLUTION.

"That the matter of the proposed Copyright Bill be referred, through the Committee of Recommendations, to the General Committee, so far as it affects (1) the copyright of scientific societies in their transactions, and (2) the publication of abstracts of scientific papers; and that they be requested to take such action as will protect scientific societies."

I am, yours faithfully,

ELI SOWERBUTTS,

Delegate for Manchester Geographical Society.

To the Secretary, British Association, for the

Advancement of Science, Burlington House, W.

The question of making the Delegates' Section of use to the Association and to the societies was again raised, but the results do not appear to be very valuable.

The general kindness of the Bradford people to the members of the Association was boundless, and was fully appreciated.

Grants of Money for Scientific Purposes were made by the General Committee at the Bradford Meeting, September, 1900, amounting to £1,072 10s. 0d. The particulars of these grants can be seen in the British Association's Report.

A number of other committee (not receiving grants) were appointed, and our members are solicited to give any help they can in the work of those committees.

The SECRETARY read Mr. Fennell's report to the Belfast Naturalists' Field Club (as delegate), which is of interest, and is here reproduced. He reported on the work done by the British Association, and placed on the screen some views of Bradford, and called attention to the Technical School, its cost and equipment, as forming a favourable model for the Belfast Institute in many ways. He proceeded to describe the arrangements made for the excursions, and then conducted the Club in imagination to Bolton Abbey, the Strid, and the good old city of York. The history of Bolton Abbey was touched on, and the chief points of interest were brought out, and a large number of pictures of the half-ruined church were shown, all from photographs taken by himself and Mr. W. Gray. The chief interest, however, centred in the visit to York, which was described as "full of old things, quaint real old-time things—old houses still preserved for their oldness, old, but not aged or decrepit; old gates, old churches, old shops, and even old furniture—a real mediæval spot, preserved in the midst of this busy workaday world, so that one could wish for time to

search out every nook and cranny in it." The visit to St. Mary's Abbey was described, and also the Hospitium of St. Leonard's, the museums, city walls, the old Guildhall, the civic treasures, and, lastly, the great glory of York—the stately Minster, with its visible records of every period of English art, from the rude herring-bone masonry of the Saxon period to the lavish richness of the Tudor times. Special attention was directed to the remarkable windows of this church, which to see even on a screen is to admire. It was said: "No architectural feature claims more general attention than the window, be it the humble casement of the cabin, the cosy dormer of the cottage, with its flood of cheery sunshine, up to the giants of the Minster, in their majesty and all their treasures of artistic glass. These are the things which from the interior catch the eye, and, if the proportion is defective, we weary at once of all minor details, and forget them, but one never forgets those of York." Mr. Fennell gave a well-illustrated description of the windows known as "The Heart of British Oak," the "Five Sisters of York," and the "Great Wall of Glass," and the election of new members brought the lecture to a close.

Very hearty thanks were given to the Secretary for his address on Bradford and for his report as delegate.

The SECRETARY responded.

The death of Mr. Thos. Dentith, a member of the Council, was announced. A very sincere and heartfelt vote of sympathy with Mrs. Dentith and her family was passed, on the motion of the Chairman, seconded, and supported, and it was suggested that the Society should be represented at the funeral, at St. Luke's. The Chairman, Vice-Chairman, and other members duly attended the mournful ceremony.

The 355th Meeting of the Society was held in the Library, on Friday, November 9th, 1900, at 7-30 p.m. In the chair, Mr. J. H. LEWIS.

The Minutes of the previous meeting were read and approved.

The election of the following members was announced:—

ORDINARY.—Mr. James H. Abbott, Mr. Frank H. Bagnall, Mr. G. E. Stechert, Dr. Frank Holmes, Mr. E. Johnson, Mr. Rd. H. Joynson, J.P., Mr. G. B. Jackson, Mr. A. Kingston.

The following presentations were announced:—

Presented by Royal Geographical Society:—Sketch Map of Central Africa, with Mr. E. S. Grogan's route. Scale, 1/1,000,000. Map of Siam and its Dependencies. Scale, 1/2,000,000. Presented by the Publishers:—Stanford's New Geographical Map of Europe. Scale, 1/4,000,000. Presented by the Author:—How to learn a Foreign Language. By Mr. W. Pulman, Sale. From the British Association:—Bradford Handbook, 1900. President's Address. Presented by the High Commissioner for Canada:—Canada: Descriptive Text Book, 1900, by Mr. E. R. Peacock, M.A. Klondike Official Guide, by Mr. W. Ogilvie, 1898. Report on Klondike Gold Fields, 1900, by Mr. R. G. McConnell, B.A. Ten Minutes' Talk about West Canada, 1899. British Settlers in West Canada. Presented by the Agent General:—Supplement to Government Gazette of West Australia, No. 42.

THE MUSEUM.—Presented by Mr. John Ainsworth, C.M.G.:—Specimen of Aloe Fibre.

PORTRAITS OF MEMBERS PRESENTED.—MR. JOHN R. NEWBY: a framed portrait of Mr. John Ainsworth, C.M.G., by Mrs. Ainsworth.

MR. W. HARPER addressed the Society on the "Commonwealth of Australia." He had previously addressed the Society on the history and developments of these colonies, and this lecture brought the subject up to date, and was exceedingly interesting and instructive. The latest national political achievement and development of the colonies. The lecture was illustrated with lantern slides and maps.

At the conclusion of Mr. Harper's address, numerous questions were asked, and replied to by him and others.

MR. S. OPPENHEIM, J.P., moved, and MR. J. S. REID seconded, that the best thanks of the Society be given to Mr. Harper for his most interesting and instructive address. The resolution was carried, and responded to by Mr. Harper.

A sincere and heartfelt vote of sympathy on account of the illness of His Royal Highness, the President, was passed, on the motion of MR. S. OPPENHEIM, J.P., the Hon. Treasurer, seconded by MR. C. A. CLARKE, and the Secretary was requested to communicate the resolution to His Royal Highness.

The 556th Meeting of the Society was held in the Memorial Hall, on Wednesday, November 14th, at 7-30 p.m. In the chair, the Rev. S. A. STEINTHAL, F.R.G.S.

Captain H. H. P. DEASY addressed the Society on his Travels in Tibet, and the following may be taken as an indication of the course of his address, which he illustrated with special lantern slides:—

Syllabus: Routes—Difficulties of extended journeys into Tibet—Its altitude—Preparations at Leh—The Chang La (pass)—Antelope Plains—Salt lakes—Illness of Pike—His valuable services—Robbed—Pike gallantly punishes robbers—Meeting with nomads—Behaviour of our men—Guides at last—Homewards—Trade—Adventure with Yak—The Nabo La—Return to Fobrang and Leh—Crossing the Sogi La—Strinigar—Abdul Khalik and my orderly—Gilgit and Hunza—The Taghdumbash Pamir—Earthquakes—Raskam—The Kukulung Pass—The Sandal Dawan (pass)—Yarkand—Khotan—Mutiny of pony men—Discovery of sources of Khotan River—Surveying at the At To Pass—Back to Polu—Return to Sarikol—Lying Tajiks—Death of Zambok—Cold bivouacs—Novel waterproofing—Ducking of native doctor—Kashgar—Mr. G. Macartney—Missionaries—The Taotai—Indian traders—Compelled to leave Polu—Death of Kasim—Polu gorge difficulties—Back to Ladak—Return to civilisation—Illness—Home.

Captain Deasy's journey was of extraordinary interest and of geographical value.

The address was illustrated with a special set of fine slides, which were shown by Mr. Mellor. The electric light was used.

Thanks were given to Captain Deasy, Mr. Mellor, and his assistant, on the motion of Mr. Harry Nuttall, and were seconded by the Secretary. Captain Deasy responded.

The 557th Meeting of the Society was held in the Library, Tuesday, November 27th, 1900, at 7-30 p.m. MR. A. J. KENNEDY, F.R.G.S., in the chair.

The Minutes of the last meeting were read and approved.

The election of the following members was announced:—

ORDINARY.—Mr. W. Haworth, J.P., Mr. H. Lathbury, Mr. J. H. Leeming, Mr. Charles Eastwood, Mr. J. A. Lomas, Mr. T. R. Langtry, Mr. W. F. Parkinson, Mr. W. Dugdale Harland, Mr. A. J. Jones; and the St. Mary's Mutual Improvement Society, Nelson, as an affiliated society.

Professor PATRICK GEDDES, of Edinburgh, addressed the Society on "Geography at the Paris Exhibition," and illustrated his address with maps and views.

Mr. GEO. PEARSON proposed, and Mr. JAS. BARNINGHAM seconded, a very hearty vote of thanks to Professor Geddes for his able and brilliant address. The motion was carried, and the Professor responded.

The 558th Meeting of the Society was held in the Library, on Wednesday, December 5th, 1900, at 7-30 p.m. In the chair, Mr. J. R. BOSWORTH.

The Minutes of the last meeting were read and approved.

The following presentations were announced:—

Presented by Mr. S. H. Brooks, F.L.Inst.:—"The Congo State," by Mr. D. C. Boulger. Presented by Mr. J. S. Thornton:—"Report on the Visit of the Essex Farmers' Party to Denmark, May to June, 1900, by Mr. J. S. Dymond. "A Poor Man's University in Denmark," by Mr. J. S. Thornton. Presented by Mr. Rd. Falck (Southern Pacific Railway Company):—"Abroad," Vol. viii. Presented by the Manchester Ship Canal Company:—"Official Sailing List, Nos. 13 and 14. Presented by Mr. A. J. Kennedy:—"Trade Journals Review," Vol. xi., No. 6. Presented by the Secretary of State for India:—"List of Proceedings, etc., India, 1859-1898. Presented by Signor Bodio, Rome:—"Annuario Statistico Italiano, 1900, 1,152 pp. Presented by Mr. George Thomas:—"The completing numbers of the "Golden Book" of the Paris Exhibition, 1900. Utställningen i Stockholm, 1897. Af A. Hasselgren. Full of illustrations and maps, 1,051 pp. and index. "The Royal Navy and Foreign Navies, also Mercantile Marine Steamers, available as Armed Cruisers and Transports," by F. T. M. Gibbs. Portrait, ship pictures, and numerous tables, 1896. Presented by the Publishers:—"The Speaker," Nos. 58 and 59. Presented by the Royal Geographical Society:—"Eighty-eight Maps from Lord Northbrook's collection, mostly in cases. We are much indebted to the Royal Geographical Society for kindly procuring this great gift.

The Rev. F. GALPIN, formerly of Ningpo, addressed the members on China, illustrating his address with a set of slides from photographs taken by Mr. Galpin in China.

Mr. SOUTHWORTH proposed, and the SECRETARY seconded, a very hearty vote of thanks to Mr. Galpin for his most interesting and valuable address. Mr. GALPIN responded.

The 559th Meeting of the Society was held in the Library, on Tuesday, December 11th, 1900, at 7-30 p.m. In the chair, Rev. S. A. STEINTHAL.

The Minutes of the last meeting were read and approved.

The election of the following members was announced:—

ORDINARY.—Mr. W. Langford, Mr. H. Janus, Mr. R. W. Hutton.

The following presentations were announced:—

THE MUSEUM.—Presented by Mr. J. R. Newby:—"Lock of hair from the scalp of a Red Indian, from Western States of America.

THE LIBRARY.—Presented by the Publishers:—"The Speaker." Vol. iii. No. 62. Presented by Messrs. G. P. Putnam's Sons:—"The Rockies of Canada," fully illustrated, by Mr. Walter Dwight Wilcox.

The Exhibitions next year at Glasgow and Buffalo, N.Y., were referred to by the Secretary.

An excursion to Roubaix at Easter was suggested.

The following correspondence was read:—

Miss Williamson, Rev. S. A. Steinthal, Captain H. H. P. Deasy, Mrs. Dentith, Mr. Joseph Jones, Mr. Wm. Thomson, Mr. N. Kolp, Mr. Hy. T. Crook, Mr. H. Vire Barclay, Miss Ada Baxendell, Miss F. M. Williamson, Mr. E. W. Cowan, Mr. J. Howard Reed, Messrs. Geo. Philip and Son, Mr. W. Newlove, Rev. Dr. S. McFarlane, Rev. F. Galpin, Mr. A. J. Herbertson, Mr. R. D. Oldham, Mr. F. J. Payton, Mr. S. H. Brooks, Mr. Alfred G. Barralet, Mr. M. Walton Brown, Mr. Herbert Shaw, Mr. C. H. Bellamy, F.R.G.S., Rev. Thomas Champness, Mr. W. W. Midgley, Mr. E. W. Greg, Mrs. Brooks, Mr. J. H. Macdonald, Mr. Joel Wainwright, Mr. A. J. Kennedy, Mr. John H. Leeming, Miss M. Baxendell, Messrs. Brooks and Doxey, Mr. N. Bodington, Mr. J. J. Gleave, Mr. Ed. Reeves, Mr. F. J. Payton, Sir F. A. Abel.

Mr. CLEMENT WRAGGE, of Australia, the founder of Ben Nevis Observatory, and Director of the Meteorological Service of Australia, who is on furlough, addressed the Society on the "Snowy Ranges of Australia, Mount Kosciusko and its Observatory," and illustrated his address with a fine and unique set of lantern views. To enable Mr. Wragge to give this address, he has had to obtain permission from Australia for an extension of time, and we welcome Mr. Wragge again to the Society.

A vote of thanks, moved by Mr. HARRY NUTTALL, and seconded by Mr. HARPER, was accorded to Mr. Wragge for his address.

The 560th Meeting of the Society was held in the Library, on Wednesday, December 19th, 1900, at 7 p.m. In the chair, Mr. J. HOWARD REED.

Minutes of last meeting were read and approved.

The election of the following members was announced:—

ORDINARY.—Mr. John Logan, Mr. Joseph Massey.

The following presentations were announced:—

Presented by Messrs. Philip and Son:—London School Atlas. Presented by the Agent General of Queensland:—Guide to Queensland, Information, and twelve other pamphlets.

This was the first attempt to have a conversational meeting on a given subject, and the subject for discussion was China.

Mr. J. HOWARD REED introduced "The Geography of China."

The SECRETARY introduced "The History of China."

Mr. R. W. SWALLOW, B.Sc., introduced "The Personal Characteristics of the Chinese."

These addresses were all given, and were illustrated with maps and lantern slides, and proved most interesting and instructive.

The last meeting of the year was held in the Library, on Friday, December 21st, 1900, at 6-30 p.m., when the Secretary gave a short lecture to the children on "Dogs." He dealt with the origin of the dog. The history of the dog. The varieties. Their use as guards, hunters, fighters, pets, workers. The duty of all to be just and kind to this friend of man. Some dog stories, old and new, were told and highly appreciated. A fine collection of lantern slides, the property of the lecturer, were shown.

LIST OF MAPS, BOOKS, JOURNALS, &c.,

ACQUIRED BY THE SOCIETY FROM JANUARY 1ST TO DECEMBER 31ST, 1900.

MAPS.

GENERAL.

Map of the World, by Gilbert. * Mr. E. Hibbert.

EUROPE.

New Orographical Map of Europe. Compiled under the direction of H. J. Mackinder, M.A. Four Sheets; Scale 1 : 4,000,000 or 63·1 miles = 1 inch. London : E. Stanford, 1900. * The Publisher.

Geological Map of the British Isles, and adjacent Coasts of France, by John Phillips, F.R.G.S. Scale, 25 miles = 1 inch. London : E. Stanford (1). * See Note A below.

Map of England and Wales, showing Military Stations and Railways. Scale, 19 miles = 1 inch. London : War Office, 1870. (84.) * See Note A below.

Map of London, showing the new Postal Districts with the Post Office List of Principal Streets and Places. London : E. Stanford, 1856. (2.) * See Note A below.

Map of North-East Kent. Index to Tithe Survey. Sheet No. 3. Scale, 1 mile = 1 inch. London : Ordnance Survey, 1819. (86.) * See Note A below.

Plan of District round Dover, showing War Department Lands. Scale, 1 mile = 6 inches. London : Ordnance Survey. (87.) * See Note A below.

Diagram of Lancashire, showing Unions, Sanitary Districts, Boroughs, and Civil Parishes; and the Sheet lines of the Ordnance Survey Maps. On the Scale of 25·344 inches = 1 mile (1 in 2,500). Revised and re-surveyed in 1888-1893. N.B.—The Boundaries are revised up-to-date (6-12-99). Southampton : Ordnance Survey Office, 1900.

New Map of North Wales, compiled from the latest and best authorities. Scale, 5 miles = 1 inch. London : Laurie and Whittle, 1807. (3.) * See Note A below.

New Map of South Wales, by N. Coltman. Scale, 3 $\frac{3}{4}$ miles = 1 inch. London : Laurie and Whittle, 1811. (4.) * See Note A below.

Map of Scotland, showing Sub-Division for Reserve Forces. Scale, 18 miles = 1 inch. London : War Office, 1870. (85.) * See Note A below.

Maps to illustrate Bathymetrical Survey of the Scottish Lochs, by Sir J. Murray and F. P. Pullar. Seven Plates. London : Royal Geographical Society, 1900. * The Society.

The Island of St. Kilda, from a survey by J. N. Heathcote. Scale, $\frac{1}{2}$ mile = 1 inch. London : Royal Geographical Society, 1900. * The Society.

Road Map of Dublin and Wicklow, for Cyclists and Tourists. Scale, about 2 miles = 1 inch. Dublin : R. J. Meccredy and Co. * The Publishers.

Road Map of County Donegal for Cyclists and Tourists. Scale, 3 miles = 1 inch. Dublin : R. J. Meccredy and Co. * The Publishers.

* Donor.

A. Presented by the Rt. Hon. Lord Northbrook, through the Royal Geographical Society.

- Road Map of Connemara for Cyclists and Tourists. Scale, 3 miles=1 inch. Dublin : R. J. Meccredy and Co. *The Publishers.
- Road Map of County Kerry for Cyclists and Tourists. Scale, 3 miles=1 inch. Dublin : R. J. Meccredy and Co. *The Publishers.
- Map of the Crimea, chiefly from Surveys made by order of the Russian Government. Compiled, drawn, and published by John Arrowsmith, London, 1854. (17.) *See Note A below.
- General-Karte von der Europäischen Türkei, von H. Kiepert. 4 Blätter. Maasstab, 1/1,000,000 (and Book of Explanatory Notes). Berlin : D. Reimer, 1853. (38.) *See Note A below.
- Military Sketch of the Country between the Danube and Constantinople. Compiled by the King of Prussia's General Staff. Scale, 10 miles=1 inch. London : Jas. Wyld, 1829. (34.) *See Note A below.
- Map of the Country between Odessa and Constantinople. Scale, 22 miles=1 inch. London : James Wyld, 1829. (35.) *See Note A below.
- Map of the Country embracing the present Seat of War between the Russians and the Turks. Scale, 22 miles=1 inch. London : James Wyld. (36.) *See Note A below.
- Map of the Danubian Principalities, prepared from the celebrated Vienna Map. Scale, 9 miles=1 inch. In two sheets. London : E. Stanford. (37.) *See Note A below.
- Greece and Candia. In two parts. Scale, 23 miles=1 inch. Published under the Superintendence of the Society for the diffusion of Useful Knowledge, London. By Baldwin and Cradock, 1829. (39.) *See Note A below.
- Carte de la Morée, dressée et gravée au Dépôt General de la Guerre, par ordre du Gouvernement en 1807, par Barbié du Boucage. Scale, 1/500,000. Paris : 1814. (54.) *See Note A below.
- Plan representing the Marches of the Greeks immediately after the Battle of Kunaxa, as described by Xenophon (for Grote's Greece). London : John Murray. (53.) *See Note A below.
- Map showing the Marches of Alexander (for Grote's Greece). London : John Murray. (51.) *See Note A below.
- Map of Greece and the Aegean Sea, prepared for Grote's History of Greece. London : John Murray. (41.) *See Note A below.
- Map of the Peloponnese during the Peloponnesian War. John Murray, 1849. (42.) *See Note A below.
- Map of Extra-Peloponnesian Greece, as it stood at the beginning of the Peloponnesian War, by K. O. Muller. (40.) *See Note A below.
- Map of Boeotia, according to Leake and Gell, with corrections and indications of the subterraneous channels of efflux connected with the Lake Kopais. From the "Hellenika" of P. W. Forchhammer, Berlin, 1837. (52.) *See Note A below.
- Map of Boeotia (for Grote's History of Greece). London : John Murray. (43.) *See Note A below.
- Map of Territory adjoining the Isthmus of Corinth, including the line of Mount Oneion between Corinth and Kenchrææ (for Grote's History of Greece). London : John Murray. (44.) *See Note A below.
- Map of Sparta and Neighbourhood (for Grote's Greece). London : John Murray, 1847. (45.) *See Note A below.
- Map of Mantinea (for Grote's Greece). London : John Murray. (46.) *See Note A below.
- Map of Grecian Colonies in Sicily and Italy at the time of the Peloponnesian War (for Grote's Greece). London : John Murray. (50.) *See Note A below.

Map of Grecian Colonies in Sicily and Italy in the Fourth Century, B.C. (for Grote's Greece). London: John Murray. (49.) * See Note A below.

Map of Syracuse and the adjacent Country (for Grote's Greece). London: John Murray, 1851. (48.) * See Note A below.

Map of Germany. Scale, 25 miles = 1 inch. London: Smith and Son. (14.) * See Note A below.

Post-und-Reise-Karte von Deutschland, von U. Henschel, J. Back, C. Santer und W. Haase. Frankfurt: C. Jügel, 1853. (16.) * See Note A below.

General Map of the Germanic Confederation, also Sleswig-Holstein and Venetia, showing the Seat of War between Austria, Prussia, and Italy. Scale, 24 miles = 1 inch. London: E. Stanford, 1866. (15.) * See Note A below.

Map of the Seat of War between the Allied Powers and France, comprehending the whole of Germany, Poland, the United Provinces, and Italy, with part of France and the Prussian Dominion. Scale, 33 miles = 1 inch. London: C. Smith, 1813. (32.) * See Note A below.

Spezial-Karte vom Harz. Four Sections. 1. Oberharz; 2. Thale; 3. Lauterberg; 4. Stolberg. Scale, 1 100,000. A. Rathke, Magdeburg.

Special Reise-und Gebirgs-Karte von Lande Tyrol, bearbeitet und gestochen von G. Mayr. Scale, 1/500,000. München: J. Palm, 1853. (55.) * See Note A below.

Théâtre de la Guerre des Armées Combinées en 1792. In three sheets. (Central Europe). (33.) * See Note A below.

Gran Carta d'Italia in 28 Fogli, dedicata all' Adriano Balbi. Scale, 1/555,555. Milan: G. Civelli and Co. 1845. (20.) * See Note A below.

Map of the Bay of Genoa. Scale, 1 in 250,000. Roma: Boschi e Capietti, 1859. (101.) * See Note A below.

Carta Generale del Regno Lombardo-Veneto. Scale, 1/288,000. In four sheets. Milano: Istituto Geografico Militare dell' Stato Maggiore Generale, 1838. (22.) * See Note A below.

Carte Corografica delle divisioni di "Alessandria" (23.), di "Cuneo e Nizza" (26.), di "Genova" (25.), di "Novara" (27.), di "Savoja" (24.), di "Torino e Aosta." (28.) Scale of 1 per 240,000. Torino: G. B. Maggi, 1850. * See Note A below.

Imperii Romani. Tabula Geographica in usum Scholarum descripta, auctore Henrico Kiepert. Berlin: D. Reimer, 1869. * Mr. E. Hibbert.

La Campagna Romana, dall' Architetto Cav. Luigi Canina. Scale, 1/60,000. (21.) * See Note A below.

Carte Topografica dell' Antichità di Roma. Rome: A. Manazzale, 1805. (29.) * See Note A below.

Pianta Topografica di Roma moderna, estratta dalla grande del nolli an 1818. (30.) * See Note A below.

Plan Topographique de la campagne de Rome, par F. Ch. L. Siekler. Rome: Venance Monaldini Libraire, 1816. (31.) * See Note A below.

Map of Switzerland: An Atlas to Ebel's Travellers' Guide through Switzerland, containing panoramic views of the mountains and Keller's Accurate Map of Switzerland. London: S. Leigh. (13.) * See Note A below.

Map of Denmark. W. and A. K. Johnston, Lithographers, Edinburgh. Scale: 15 miles = 1 inch. London: E. Stanford, about 1870. (12.) * See Note A below.

Carte Itinéraire des Routes de la Belgique et des Départements Français jusques y compris Paris, par M. de Bouge. Amsterdam: Mortier, Covens. et Fils, 1793. (11.) * See Note A below.

Carte physique et mineralogique du Mont Blanc, par Capitaine J. B. Raymond. Gênera: P. G. Ledouble, 1800. (10.) * Note A below.

- Carte de la Republique Française, divisée en 103 départements, avec leur chef-lieux de Prefectures. Paris: Esnault, An. "10" (1802). (7.) * See Note A below.
- Carte de l'Empire Français et du Royaume d'Italie, avec une partie des Etats qui sont sous la protection de l'Empereur Napoléon, par Ch. Picquet. Scale, about 50 miles = 1 inch. Paris, 1811. (5.) * See Note A below.
- Carte de la France, par A. H. Brué. Scale, 15 miles = 1 inch. Paris: J. Goujon, 1818. (8.) * See Note A below.
- Map of France in departments, by Keith Johnston, F.R.S.E. Scale, 1/2,292,000 or 35 miles = 1 inch. Edinburgh: W. and A. K. Johnston. (6.) * See Note A below.
- Map of the Seat of War (North East France). Scale 1 in 320,000. London: E. Stanford, 1870. (99.) * See Note A below.
- Carte Hydrographique du Département de la Seine. In two sheets. Scale, 1 in 25,000. Par Ordre du Préfet de la Seine. Paris: Longuet, 1852. (100.) See Note A below.
- Nouveau plan routier de la Ville et Faubourgs de Paris, par M. Pichon. Paris: Esnault, An. "10" (1802). (9.) * See Note A below.
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- Crystal Falls Iron-Bearing District of Michigan. 53 plates, 4to. Monographs of the U.S. Geological Survey. Vol. XXXVI. Washington, 1899. *The Director of the Survey.
- Cave Regions of the Ozarks and Black Hills. By L. Agnes Owen. With maps and illustrations. Cincinnati: Editor Publishing Co., 1898. *The Publishers.
- Illinois Glacial Lobe. 24 plates, 4to. Monographs of the U.S. Geological Survey. Vol. XXXVIII. Washington, 1899. *The Director of the Survey.
- Fossil Flora of the Lower Coal Measures of Missouri. 73 plates, 4to. Monographs of the U.S. Geological Survey. Vol. XXXVII. Washington, 1899. *The Director of the Survey.

Geology of the Yellowstone National Park; Part II. Descriptive Geology, Petrography and Paleontology. 121 plates, 4to. Monographs of the U.S. Geological Survey. Vol. XXXII. Washington, 1899. * The Director of the Survey.

OCEANIA.

The Sydney Mail. No 2084, January 27, 1900. Containing an illustrated account of the Australian Contingent in South Africa. * The Publishers.

Information relating to Queensland and its Resources, with complete list of towns and two maps. * The Agent-General for Queensland.

The Garden of Queensland (Darling Downs). By G. E. Evans. With illustrations and two maps. * The Agent-General for Queensland.

Catalogue of Exhibits in the Queensland Court; Greater Britain Exhibition, London, 1899. * The Agent-General for Queensland.

The Queenslander, August 15th, 1899, Rockhampton Number. * The Agent-General for Queensland.

Supplement to Government Gazette of Western Australia (No. 36., M.S. No. 9). Mining Statistics, May, 1900. * The Agent-General.

Supplement to Government Gazette of Western Australia, No. 42. Mining Statistics, June, 1900. * The Agent-General.

LIST OF CORRESPONDING SOCIETIES, &c. (EXCHANGES.)

BRITISH.

Belfast. Natural History and Philosophical Society. Report and Proceedings for the session 1899-1900.

Birmingham. Philosophical Society. (Nothing received.)

Burnley. Literary and Scientific Club. Transactions, 1897. Vol. XV.

Cardiff. Naturalist's Society. Report and Transactions. Vol. XXXI., 1898-99.

Croydon. Microscopical and Natural History Club. Proceedings and Transactions, 1899-1900.

Edinburgh. Scottish Geographical Society. Magazine, 1900. Vol. XVI., Nos. 1-12.

Glasgow. Philosophical Society. Proceedings, 1899-1900. Vol. XXXI.

Glasson Dock, Lancaster. Greenwood's Nautical, General and Kluudnometric Tide Tables, &c., for the British Isles and adjoining Coasts. 15th year, 1900.

Halifax. Yorkshire Geological and Polytechnic Society. (Nothing received.)

Hertford. Hertfordshire Natural History Society and Field Club. Transactions, 1900. Vol. X., Parts 5, 6.

Leeds. Yorkshire Naturalists' Union. Transactions. Part 22.

Leeds. Yorkshire Union of Institutes and Village Library. Report of the 63rd Annual Meeting at Keighley and Haworth, June 13th, 1900.

Leicester. Literary and Philosophical Society. Transactions. Vol. V., Parts 7-10.

Liverpool. Geographical Society. Transactions and 8th Annual Report, 1899.

Liverpool. Geological Society. Proceedings, 1899-1900. Vol. VIII., Part 4.

- London. Anti-Slavery Reporter, 1900, January to December. "Sixty Years Against Slavery."
- London. British Association for the Advancement of Science. Report of the 69th Meeting, held in Dover in 1899. Bradford Handbook, 1900, with maps and illustrations. President's Address and other Papers, 1900.
- London. The Colliery Guardian, 1900. Nos. 2036-2087.
- London. Royal Colonial Institute. Report of Proceedings. Vol. XXXI., 1899-1900.
- London. East India Association. Journal, 1900. Nos. 18, 20, 21.
- London. Emigrants' Information Office. Combined Circulars for Canada, Australasia, and South Africa, 1900. Quarterly.
- London. Royal Geographical Society. The Geographical Journal, 1900. Vol. XV., Nos. 1-6. XVI. 1-6, and Year Book and Record.
- London. Imperial Institute. Journal. 1900, January to December.
- London. India Office. List of Maps, Plans, &c., of India and other parts of Asia. Appendices, Nos. 31-34. List of Proceedings, &c., India. Vol. I., 1834-1858; Vol. II., 1859-1898. Preserved in the Record Department of the India Office.
- London. Royal Society of Literature. Transactions. Vol. XXI, Parts 3, 4; XXII., 1-2. Report for 1899. Chaucer Memorial Lectures, 1900.
- London. Royal Gardens, Kew. Bulletins. Appendices I., II., III., and IV., 1900.
- London. Review of Reviews. 1900, January to December.
- London. Sell's Commercial Intelligence, 1900. Nos. 63 to 114.
- London. Travel. Monthly. Edited by Dr. H. S. Lunn, M.D. 1900, January to December. "Travel Extra, No. 1." "Winter Holidays, 1900-1901."
- London. War Office, Intelligence Division. Maps. (See List of Maps.)
- London. War Office. Catalogue of Maps. Accessions. 1900, January to December.
- London. War Office. Catalogue of Maps in Books and Periodicals contained in the War Office Library. Accessions, 1899.
- London. War Office Library. Accessions. 1900, January to December.
- London. War Office Library. Geographical Index of Accessions. 1900, January to December, and Annual for 1899. Also Index 1895-1899.
- Manchester. Chamber of Commerce. Monthly Record. 1900, January to April, July, August, October to December.
- Manchester. Co-operative Wholesale Societies Limited. Annual for 1900. Presented by Mr. H. C. Pingstone and Mr. G. H. Warren.
- Manchester. Geological Society. Transactions. Vol. XXVI., Parts 10-19.
- Manchester. Literary and Philosophical Society. Memoirs and Proceedings. Vol. XLIV., Parts 1-5.
- Manchester. Museum. Owens College. Publication. No. 30—Notes from the Museum; No. 31—Report for 1899-1900.
- Manchester. Textile Recorder. 1900, January to December, Nos. 201-212.
- Manchester. Trade Journals' Review for Engineers, Manufacturers, Users, &c. Edited by A. J. Kennedy. Vol. XI., Nos. 2, 5, 6; XII., No. 1.
- Newcastle-on-Tyne. Tyneside Geographical Society. Journal. 1900, January. Vol. IV., No. 4.
- Newcastle-on-Tyne. North of England Institute of Mining and Mechanical Engineers. Transactions. Vol. XLVIII., Nos. 7, 8; XLIX., 1-5. Annual Report, 1899-1900.
- Oxford. Clarendon Press. Historic Atlas of Modern Europe, from the Decline of the Roman Empire. Parts XXV., XXVI., XXVII.
- Penzance. Royal Geological Society of Cornwall. Transactions. Vol. XII, Part 5. (86th Annual Report.)

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Rochdale. Literary and Scientific Society. Transactions. Vol. VI. 1898-1900.

Salford. Museums, Libraries, and Parks Committee, Salford Corporation. 52nd Annual Report, 1899-1900.

Southampton. Geographical Society. Report for 1899.

York. Yorkshire Geological and Polytechnic Society. Proceedings. Vol. XIV., Part 1.

York. Yorkshire Philosophical Society. Annual Report for 1899.

MISSIONARY.

Edinburgh. Church of Scotland Home and Foreign Mission Record. 1900, January to December.

Freiburg im Breisgau. Die Katholischen Missionen. (Illustrated.) 1900, January to December.

London. Baptist Missionary Society. The Missionary Herald. 1900, January to December.

London. British and Foreign Bible Society. 96th Report, for the year ending March, 1900. "Gleanings," 1900, January, March to August, October to December. "Monthly Reporter," 1900, January to August, October to December.

London. Church Missionary Society for Africa and the East. Proceedings. 1899-1900.

London. Church Missionary Intelligencer. 1900, January to December.

London. London Missionary Society. 105th Report for the year ending March, 1900.

London. Illustrated Catholic Missions. Edited by the Very Rev. L. C. Casartelli, M.A., Ph.D. January to December, 1900.

London. Society for the Propagation of the Gospel in Foreign Parts. Report for 1899.

London. The Mission Field, S.P.G. January to November, 1900.

London. Universities Mission to Central Africa. "Central Africa." January to December, 1900.

London. Wesleyan Missionary Notices. January to December, 1900.

London. Methodist Free Church. "Missionary Echo." January to December, 1900.

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Adelaide. Royal Geographical Society of Australasia, South Australian Branch. President's Annual Address.

Brisbane. Royal Geographical Society of Australasia, Queensland Branch. Scheme for "Thomson Foundation Medal." "Queensland Geographical Journal." New Series. Vol. XV. 1899-1900.

Brisbane. Meteorological Branch Post and Telegraph Department, Queensland. Clement L. Wragge, Government Meteorologist. (See List of Books).

Brisbane. Annual Report of British New Guinea, 1898-1899.

Capetown. South African Philosophical Society. Transactions. Vol. XI. Parts 1, 2. List of Contents of Vols. I. to XI.

Halifax. Nova Scotian Institute of Science. Proceedings and Transactions. Vol. X. Part 1. (Session of 1898-99).

Melbourne. Royal Geographical Society of Australasia, Victorian Branch. Transactions. 1899, Vol. XVII. 1900, XVIII., Part 1.

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Perth. Supplement to the Government Gazette of Western Australia. No. 53. (M.S. No. 11), Mining Statistics, July, 1900. No. 73 (M.S. No. 15), Mining Statistics, November, 1900. Also, Statistics of Gold produced and exported from 1886 to 1900. (Presented by the Agent-General).

Quebec. Geographical Society. (Nothing received).

Sydney. Department of Mines and Agriculture, New South Wales. Geological Survey Branch, Records. Vol. VI., Part 4; Vol. VII., Part 1. Mineral Resources, Nos. 7, 8.

Ydney. Royal Geographical Society of Australasia, New South Wales Branch (Nothing received).

Toronto. Canadian Institute. Transactions. Nos. 11 and 12 (Vol. VI., Parts 1 and 2). Semi-Centennial Memorial Volume, 1849-1899. Proceedings. New Series. No. 9, February, 1900. (Vol. II., Part 3).

Wellington. Department of Lands and Survey, New Zealand. Report for the year 1899-1900, by S. P. Smith, F.R.G.S., Surveyor-General.

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Antwerp. Société Royale de Géographie d'Anvers. Bulletin. Vol. XXIV. Nos. 1 to 4.

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Berlin. Gesellschaft für Erdkunde. Verhandlungen. Vol. XXVII., Nos. 1 to 10.

Berlin. Deutsche Kolonial Zeitung. Organ der Deutschen Kolonialgesellschaft, 1900 Nos. 1 to 52. Jahresbericht, 1899.

Bern. Geographischen Gesellschaft. XVII. Jahresbericht. 1898-99.

Bordeaux. Société de Géographie Commerciale. Bulletin. 1900, Nos. 1 to 24.

Boston, U.S.A. Public Library of the City of Boston. Monthly Bulletin. Vol. V., Nos. 1 to 12. 48th Annual Report, 1899-1900. Annual List of Books added to Library, 1898-1899.

Bourg. Société de Géographie de l'Ain. Bulletin. January to June, 1900.

Bremen. Deutsche Geographische Gesellschaft. Blätter. Vol. XXIII., Nos. 1 to 4.

Brest. Société Académique de Brest. Section de Géographie. (Nothing received).

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Brussels. Société Royale Belge de Géographie. Bulletin. 1900, Vol. XXIV., Nos. 1 to 6.

Brussels. Le Mouvement Géographique. 1900, Nos. 1 to 52.

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Brussels. Institut Colonial Internationale. Bibliothèque. 5th series (Les Chemins de fer). Tomes I., II., III.

Brussels. Société d'Etudes Coloniales. Bulletin. 1900, January to December, Nos. 1 to 12.

Brussels. Université Nouvelle, Institut Géographique de Bruxelles. Publication No. 2, Formation des Dunes de Sable; No. 3, Fleuves Sous-marins.

Budapest. Société Hongroise de Géographie. Bulletin. Vol. XXVIII., Nos. 1 to 10, and Abrégé. Resultate der Wissenschaftlichen Erforschung des Balatonsees. Dritter Band, Vierter Theil.

Buenos Aires. Instituto Geografico Argentino. Boletin. 1899, July to December. (Vol. XX., Nos. 7-12.)

- Buenos Aires. Direccion General de Estadistica. El Comercio Exterior Argentina. (Nothing received.)
- Buenos Aires. Oficina Demografica Nacional. Boletin Demografico Argentino. First year, Nos. 1 to 4.
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- Buenos Aires. Ville de Buénos Aires. Annuaire Statistique. IX^{me} Année, 1899.
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- Cairo. Société Khédéviale de Géographie. Bulletin. Series V. Nos. 6, 7, 8.
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- Cassel. Verein für Erdkunde. (Nothing received.)
- Copenhagen. Geografisk Tidsskrift udgivet af Bestyrelsen for det Kongelige danske geografisk Selskab. Vol. XV., Nos. 5, 6.
- Darmstadt. Verein für Erdkunde. Notizblatt. IV. Folge, 20 Heft.
- Dijon. Société Bourguignonne de Géographie et d'Histoire. Memoires. Tome XVI., 1900.
- Douai. Union Géographique du Nord de la France. Bulletin. 1899, Vol. XX., No. 4; 1900, Vol. XXI., Nos. 1, 3. (No. 2 not received.)
- Dresden. Verein für Erdkunde. Jahresbericht. (Nothing received.)
- Dunkerque. Société de Géographie de Dunkerque. Bulletin. 1900, Nos. 8-11.
- Frankfurt. Verein für Géographie und Statistik. (Nothing received.)
- Geneva. Le Globe, Organe de la Société de Géographie. Bulletin. Vol. XXXIX., Nos. 1, 2, and Mémoires.
- Geneva. Société des Anciens Elèves de l'École Supérieure. Bulletin Trimestriel. Nos. 46-49.
- Giessen. Geographische Mitteilungen aus Hessen. 1900. Heft I. und II.
- Guatemala. Direccion General de Estadistica. (Nothing received.)
- Griefswald. Geographischen Gesellschaft. VII. Jahresbericht, 1898-1900. XVII. Excursion nach Ost-Schleswig-Holstein. Juni, 1900.
- Halle. Verein für Erdkunde. Mitteilungen für 1900.
- Halle. Kaiserlichen Leopoldinisch-Carolinischen Deutschen Akademie der Naturforscher. Abhandlungen. 1895, Vol. LXVII., No. 1. 1899, LXXVII., Nos. 1, 2.
- Hamburg. Geographische Gesellschaft. Mittheilungen. Band XVI.
- Havre. Société de Géographie Commerciale. Bulletin. 1900, Vol. XVII., Nos. 1-4.
- Havre. Société Géologique de Normandie. Bulletin. 1898-1899, Tome XIX.
- Helsingfors. Société de Géographie de Finlande. (Nothing received.)
- Helsingfors. Meddelanden af Geografiska Föreningen. Velenskagliga. 1899-1900, Vol. V.
- Hermannstadt. Siebenbürgischen (Transylvanian) Karpathenverein. XX. Jahrbuch, 1900, mit fünf Lichtdruckbildern als Beilage.
- Irkutsk. Imperial Russian Geographical Society (East Siberian Section) Journal. Vol. XXX., Nos. 2, 3.
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- Königsberg. Geographische Gesellschaft. (Nothing received.)

- La Paz. Oficina Nacional de Inmigracion, Estadistica y Propaganda Geografica. "Estudios de Orografia Andina," por M. V. Ballivian. "Estadistica Judicial, 1897-1898," por Dr. B. Saavedra. Monografias de la Industria Minera. Tome III. El Estado en Bolivia. "Noticia politica, geografica, industrial y estadistica de Bolivia," por M. V. Ballivian. "Escritos de Don Tadeo Haenke" (Segunda Serie).
- La Paz. Sociedad Geografia de la Paz. Boletin. Vol. II., No. 3.
- La Plata. Direccion General de Estadistica de la Provincia de Buenos Aires. Anuario Estadistico de la Provincia de Buenos Aires, ano 1897, publicado bajo la direccion de Carlos P. Salas.
- La Plata. Museo de la Plata. (Nothing received.)
- Leipzig. Verein für Erdkunde. Mitteilungen, 1899.
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- Lima. Sociedad Geografica. (Nothing received.)
- Lisbon. Sociedade de Geographia de Lisboa. Boletin. 1898-1899, 17th Volume Parts 3 to 7.
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- Lwow. Towarzystwa Ludoznawczego we Lwowie. Lud. Vol. VI. Nos. 1 to 4.
- Madison. Wisconsin Academy of Sciences, Arts, and Letters. Transactions. 1899. Vol. XII. Part 2.
- Madison. Wisconsin Geological and Natural History Survey. Bulletin. No. III. (Scientific Series, No. 2); V. (Educational Series, No. 1); VI. (Economic Series, No. 3).
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- Marseille. Société de Géographie. Bulletin, 1899. Vol. XXIII. No. 4. 1900. XXIV. Nos. 1 to 3.
- Metz. Verein für Erdkunde. XXII. Jahresbericht für 1899-1900.
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- Mexico. Sociedad Cientifica "Antonio Alzate." Memorias y Revista. Vol. XIV. Nos. 1 to 12.
- Milan. L'Esplorazione Commerciale. 1900. Anno XV. Nos. 1 to 24.
- Montevideo. Museo Nacional de Montevideo. Anales. Vol. II. Nos. 13 to 16.
- Montpellier. Société Languedocienne de Géographie. Bulletin, 1900. Vol. XXIII. Nos. 1 to 3. Géographie Générale du Département de l'Hérault. Vol. III. Histoire Générale. Part I. L'Hérault aux temps prehistoriques.
- Moscow. Geographical Section of the Imperial Society of Natural Science of the University. Journal, 1900. Nos. 1, 4.
- Munich. Geographische Gesellschaft in München. Jahresbericht für 1898 and 1899.
- Nancy. Société de Géographie. Bulletin, 1900. Vol. XXI. Parts 1 to 3.
- Nantes. Société de Géographie. (Nothing received.)
- Naples. Société Africana d'Italia. (Nothing received.)
- Neuchâtel. Société Neuchâteloise de Géographie. Bulletin, 1900. Vol. XII.

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- New York. American Geographical Society. Bulletin. Vol. XXXII. Nos. 1 to 5.
- New York. American Museum of Natural History. Bulletin, 1899. Vol. XI.
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- New York. Journal of School Geography. Vol. IV. Nos. 1 to 10.
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- Oran. Société de Géographie et d'Archéologie. Bulletin Trimestriel. Vol. XX., January to December.
- Omsk. Imperial Russian Geographical Society, West Siberian Branch. Report of Proceedings. 1897, XXII.; 1898, XXIII., XXIV., XXV.; 1899, XXVI.
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- Paris. Société de Spéléologie. Spelunca. (Bulletin). Vol. VI., Nos. 21, 22.
- Paris. Société de Topographie. Bulletin. 1900, Vol. XXIV., Nos. 1 to 9.
- Paris. Comité de l'Afrique Française. Bulletin. 1900, Nos. 1 to 12. Renseignements Coloniaux. 1900, Nos. 1 to 8.
- Paris. Le Tour du Monde. Published by Hachette & Co. 1900, Nos. 1 to 52.
- Paris. Revue Géographique Internationale. M. Georges Renand. Editor. 1900, January to December.
- Philadelphia. American Philosophical Society. Proceedings. 1900, Vol. XXXIX., January to December, Nos. 161 to 164.
- Philadelphia. Commercial Museums. Provision Trade of the U.S. and the World's Provision Supply and Trade. Bureau of Statistics, Treasury Department (O. P. Austin, Chief). February, August, 1900.
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Cotton Trade of the U.S. and the World's Cotton Supply and Trade. Bureau of Statistics, Treasury Department (O. P. Austin, Chief); March, 1900.
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Annual Report of the Chief of the Bureau of Statistics on the Foreign Commerce of the U.S. for year ending June, 1900. Bureau of Statistics (O. P. Austin, Chief); Treasury Department.
- Philadelphia. Free Museum of Science and Art. Bulletin. 1900, Vol. II., Nos. 3, 4.
- Philadelphia. The Department of Archaeology and Palæontology. University of Pennsylvania. (Nothing received.)
- Prague. Société de Géographie Telegue à Prague. Revue. Vol. V.
- Rochefort. Société de Géographie. Bulletin. 1900, Vol. XXII., Nos. 1 to 3.
- Roma. Società Geografica Italiana. Bollettino. 1900, Nos. 1-11, and Supplement, List of Members, 1900 (No. 7 missing). Memorie. Vol. IX.
- Roma. Rivista Geografica Italiana. 1900, Vol. VII., Nos. 1 to 10.
- Presented by Signor Luigi Bodio.
- Rome. Bulletin de l'Institut Internationale. Tome XII., Part I.
Statistica Industriale Lombardia, 1900.
Popolazione. Movimento della Stato Civile, 1898.
Annuario Statistico Italiano, 1900.
Statistica della Emigrazione Italiana, 1898-99.

- Rome. "Cosmos." Presented by Prof. Guido Cora. (Nothing received).
- Rouen. Société Normande de Géographie. Bulletin. January to September, 1900.
- San Francisco. Southern Pacific Railway, per R. Falck, of Liverpool. "Sunset." Vol. IV., Nos. 3, 5, 6; V., 1, 2, 3, 5; VI., 1, 2. "Abroad." Vol. VIII., 1899-1900.
- San Francisco. Geographical Society of the Pacific. (Nothing received).
- San José. Instituto Físico-Geográfico y del Museo Nacional de Costa Rica. (Nothing received).
- St. Nazaire. Société de Géographie. Bulletin. Vol. XIV.
- St. Petersburg. Imperial Russian Geographical Society. Journal. 1899, Vol. XXXV., Part 7, and Reports; 1900, XXXVI., Parts 1-5.
- St. Petersburg. The Russian Journal of Financial Statistics. Specimen No. A., 1900.
- Santiago. Deutsche Wissenschaftlichen Vereins zu Chile. Verhandlungen. Band IV., Heft 2.
- Shanghai. Imperial Maritime Customs, China. I.: Statistical Series. No. 2. Customs Gazette, Nos. 124-128, October, 1899, to December, 1900; Nos. 3 and 4, Part I., Returns of Trade and Trade Reports for 1899, Part 2, Reports and Statistics for each Port. II.: Special Series. Medical Reports for Half-year ending 30th September, 1899 (58th issue), 31st March, 1900 (59th issue).
- Shanghai. China Branch of the Royal Asiatic Society. Journal. 1896-7, Vol. XXXI.
- Stettin. Gesellschaft für Völker—u. Erdkunde. Bericht über die Vereinsjahre 1897-98 und 1898-99.
- Stockholm. Ymer: Tidskrift utgifven af Svenska Sällskapet för Antropologi och Geografi. 1893 (Trettonde Argängen); 1900 (Tjugonde Argängen), Parts 1-4.
- Stuttgart. Württembergische Verein für Handelsgeographie. (Nothing received).
- Tokyo. Geographical Society. Journal. Vol. XII., Nos. 133-138.
- Toulouse. Société de Géographie. Bulletin, 1899. Vol. XVIII. No. 6; 1900, XIX., 1 to 5.
- Tours. Société de Géographie. Revue. 1899, Vol. 16, No. 2. 1900, Vol. 17, No. 1.
- Upsala. Geological Institution of the University of Upsala. Bulletin, 1899. Vol. IV. Part 2, No. 8. Meddelanden. No. 25.
- Vienna. K. K. Geographische Gesellschaft. Mittheilungen. 1900. Vol. XLIII. Nos. 1 to 12. Abhandlungen. Vol. II. Nos. 1 to 7.
- Vienna. Verein der Geographen an der Universität Wien. Bericht über das XXV. Vereinsjahr 1898-1899.
- Washington. National Geographic Society. Magazine. 1900. Vol. XI. Nos. 1 to 12.
- Washington. U.S. Coast and Geodetic Survey. 67th Annual Report for the Year ending June 30th, 1898. Special Publication, No. 4, "The Transcontinental Triangulation."
- Washington. U.S. Geological Survey. C. D. Walcott, Director. Monographs. Vol. XXXII. Part 2. XXXIII., XXXIV., XXXVI., XXXVII., XXXVIII.
- Washington. U.S. Geological Survey. C. D. Walcott, Director. 20th Annual Report. Parts I., VI. (2 parts).
- Washington. U.S. Geological Survey. C. D. Walcott, Director. Bulletins. (Maps and Illustrations.) No. 50. Educational Series of Rock Specimens collected and distributed by the U.S. Geological Survey. 151. Lower Cretaceous Gryphaeas of the Texas Region. 152. Cretaceous and Tertiary Plants of North America. 153. Index of North American Carboniferous Invertebrates. 154. Gazetteer of Kansas. 155. Earthquakes in California in 1896 and 1897. 156. Bibliography of North American Geology, &c., for 1897. 157. Gneisses, and associated Rocks of S.W. Minnesota. 158. Moraines of S.E. South Dakota. 159. Geology of Eastern Berkshire County, Mass. 160. Dictionary of Altitudes in the U.S. (Third Edition). 161. Earthquakes in California in 1898. 162. Bibliography of North American Geology, &c., for 1898.

Washington. Smithsonian Institution. (Nothing received.)

Washington. U.S. National Museum. (Nothing received.)

Washington. U.S. Department of Agriculture. Report of the Chief of the Weather Bureau. 1898-1899. In two vols. "Section of Foreign Markets," by F. H. Hitchcock. Reprint from Year Book of Department of Agriculture for 1897. Bulletins 13, 14, 15, 16, 17, 18, 19, 20, 21. Publication No. 228. "Tables of Daily Precipitation."

Washington. U.S. Department of Agriculture, Weather Bureau. Monthly Weather Review. 1900, January to December, and Annual Summary.

Winona. American Bureau of Geography. Bulletin. Presented by G. P. Reclus Guyan. Vol. 1. Nos. 1 to 3.

THE MUSEUM.

ADDITIONS IN 1900.

Presented by the Agent General of Western Australia, through the Jarradale Co London. Six samples of Jarradale Wood (two polished).

Presented by Mr. George Thomas.

Two pairs Alpargatas (Spanish Shoes from Andalusia (men's and women's)).

One Gourd and one pair of Shoes (Kavass) from Greece. Athens, 1900.

One Russian Night Watchman's Rattle. 1879.

One Turkish Inkstand (portable for travellers), and receptacle for pens. Beautifully engraved.

One portable Turkish Coffee Grinder.

One Turkish Copper Coffee Boiler.

One Turkish Coffee Cup and Stand.

Two pieces—Souvenirs from La Commune (Fire at Hotel de Ville). Paris, 1879.

Presented by Mr. John Ainsworth, C.M.G. Specimen of Aloe Fibre.

Presented by Mr. George Thomas. Woven Basket made by the prisoners in the jail at Tangiers.

Presented by Messrs. Atkinson, Sheffield. Set of knives showing the complete course of manufacture.

Presented by Messrs. John Brown & Co., Sheffield. Sample of Blister Steel.

Presented by Rev. W. Vivian, F.R.G.S. Mendi Cows' Horns, mounted.

Presented by Mr. Harry Nuttall. Specimen of Mixed American Maize. Specimen of Corn Cobs and of Californian and Oregon Wheat.

Presented by Mr. John R. Newby. A lock of hair from the Scalp of a Red Indian from the Western States of America.

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THE
MANCHESTER GEOGRAPHICAL SOCIETY.

RULES.

I. OBJECT AND WORK.

The object of the Manchester Geographical Society is to promote the study of all branches of Geographical Science, especially in its relations to commerce and civilisation.

The work of the Society shall be:—

1. To further in every way the pursuit of the science; as, by the study of official and scientific documents, by communications with learned, industrial and commercial societies, by correspondence with consuls, men of science, explorers, missionaries, and travellers, and by the encouragement of the teaching of geography in schools and colleges.

2. To hold meetings at which papers shall be read, or lectures delivered by members or others.

3. To examine the possibility of opening new markets to commerce and to collect information as to the number, character, needs, natural products and resources of such populations as have not yet been brought into relation with British commerce and industry.

4. To promote and encourage, in such way as may be found expedient, either alone or in conjunction with other Societies, the exploration of the less known regions of the earth.

5. To inquire into all questions relating to British and Foreign colonisation and emigration.

6. To publish a Journal of the proceedings of the Society, with a summary of geographical information.

7. To form a collection of maps, charts, geographical works of reference, and specimens of raw materials and commercial products.

8. The Society shall not enter into any financial transactions beyond those necessarily attached to its declared object, and shall not make any dividend, gift, division, or bonus in money unto or between any of its members.

II. ORGANISATION.

9. The Society shall consist of ordinary, associate, corresponding, and honorary members.

10. A Council shall be chosen annually from the ordinary members to conduct the affairs of the Society. It shall consist of a President, four or more Vice-Presidents, a Treasurer, two or more Honorary Secretaries (including a Secretary for Foreign Correspondence), and twenty-one Councillors.

11. There shall be three Trustees elected by the Society, who shall hold office until death, disability, insolvency, or resignation. They shall be members of the Council by virtue of their office.

12. Any vacancy occurring in the Council during the current year may be filled up by the Council.

III. ELECTION OF MEMBERS.

13. Every candidate for admission into the Society as an ordinary or an associate member must be proposed by a member. The proposal shall be read out at the next Ordinary Meeting of the members, and any objection shall be forwarded in writing to the Secretary within seven days.

14. The election of members is entrusted to the Council. The names of those elected shall be announced from the chair at the next Ordinary Meeting after the election.

15. The Secretary shall within three days forward to every newly-elected member notice of his election, a copy of the Rules of the Society, and a card announcing the days on which the Ordinary Meetings will be held during the session. But the election of an ordinary or associate member shall not be complete, nor shall he be permitted to enjoy the privileges of a member, until he shall have paid his first year's subscription. Unless such payment be made within three calendar months from the date of election the election shall be void.

16. The Council shall have power to elect honorary and corresponding members

17. Women shall be eligible as members and officers of the Society.

IV. PAYMENTS.

18. Any ordinary member shall pay an annual subscription of £1 1s., or he may compound by one payment of £10 10s. An associate member shall pay an annual subscription of 10s. 6d. The Society's year shall begin on the first day of January.

19. Members shall not be entitled to vote or to enjoy any other privilege of the Society so long as their payment shall continue in arrear, but associate members shall not vote nor shall they take any part in the government of the Society.

20. The first annual payment of a member elected in November or December shall cover his subscription to the 31st December in the year following.

21. On the first day of January in each year there shall be put up in the rooms of the Society a complete list of the members with the amount of their subscription due, and as the amounts are paid the fact shall be marked on the list.

22. Notice shall be sent to every member whose subscription shall not have been paid by the first of February, and if the arrears are not discharged by the first of July the Council may remove the member from the list of members. Any member, whose subscription is in arrear for two years shall not be entitled to receive the Journal of the Society

V. MEETINGS.

23. The meetings of the Society shall be of three kinds—Ordinary, Annual, and Special.

24. In all meetings a majority of those present shall decide all questions, the President or Chairman having a casting vote in addition to his own.

ORDINARY MEETINGS.

25. The Ordinary Meetings of the Society shall be held once a month, from the month of October to the month of May, or oftener, if judged expedient by the Council.

26. All members whose subscriptions are not in arrear shall have a right to be present. All ordinary members shall have the privilege of introducing one visitor.

27. The order of proceedings shall be as follows :—

- (a) The minutes of the last meeting to be read and if correctly recorded they shall be signed by the Chairman.
- (b) Presents, whether of money, books, maps, charts, instruments or specimens made to the Society to be announced.
- (c) The election of new members to be declared and the names of candidates to be read.
- (d) Papers and communications to be read and discussed.

28. At these meetings nothing relating to the rules or management shall be brought forward, but the minute book of the Council shall be on the table at each meeting for the inspection of any member, and extracts therefrom may, with the consent of the chairman, be read to the meeting on the requisition of any member.

29. On occasions of exceptional interest the Council may make provision for a larger admission of visitors.

ANNUAL MEETINGS.

30. The Annual Meeting of the members shall be held at such time and place as the Council shall determine.

31. Fourteen days' notice of such meeting shall be sent to every member within the United Kingdom who has given his address to the Secretary, and notice of the meeting shall be advertised in such newspapers as the Council may direct.

32. The object of this meeting shall be to receive the Annual Report of the Council and the Treasurer's Balance Sheet, to hear the President's address, to elect the Council and officers for the ensuing year, and to transact any other business.

33. Any two ordinary members may nominate candidates for the Council or for office not later than one week prior to the day of election, and the names of candidates so nominated shall be at once put up in the rooms of the Society. The election of the Council and officers shall be by ballot.

SPECIAL GENERAL MEETINGS.

34. The Council may call a Special General Meeting of the Society whenever they shall consider it necessary, and they shall do so if required by 20 ordinary members.

35. A week's notice of the time and object of every Special Meeting shall be sent to all members. No other business shall be entertained than that of which notice has been thus given.

36. Twenty ordinary members shall form a quorum.

VI. COUNCIL AND OFFICERS.

THE COUNCIL.

37. The government of the Society shall be entrusted to the Council, subject to the rules of the Society.

38. The Council shall annually elect a Chairman and Vice-Chairman.

39. The President or the Chairman, or any three members of the Council, may at any time call a meeting thereof, to which every member of the Council shall be summoned.

40. Seven shall form a quorum.

41. In order to secure the most efficient study and treatment of the various subjects which constitute the chief work of the Society, the Council may appoint Committees for special purposes. These Committees, with the approbation of the Council, may associate with themselves any persons—whether members of the Society or not—from whom they may desire to obtain special assistance or information. The Committees shall report to the Council the results of their proceedings.

42. The President, Chairman, Vice-Chairman of the Council, and the Honorary Secretaries, shall, by virtue of their offices, be members of all Committees appointed by the Council.

PRESIDENT AND VICE-PRESIDENTS.

43. The President is, by virtue of his office, the chairman of all the meetings of the Society. In the absence of the President, one of the Vice-Presidents may preside.

CHAIRMAN OF THE COUNCIL.

44. It is the duty of the Chairman of the Council to see that the rules are properly observed, to call for reports and accounts from Committees and Officers, and to summon, when necessary, special meetings of the Council and of Committees.

TREASURER.

45. The Treasurer has the charge of all accounts; he shall pay all accounts due by the Society after they have been examined and approved by the Council.

46. He shall see that all moneys due to the Society are collected, and shall have power, with the approval of the Council, to appoint a collector. All moneys received shall be immediately paid to the bankers of the Society.

47. The bank passbook and the book of accounts shall be laid upon the table at every ordinary meeting of the Council.

48. The accounts shall be audited annually by two members, who shall be elected at an ordinary meeting at least one month before the Annual Meeting.

SECRETARIES.

49. The duty of the Honorary Secretaries shall be :—

(a) To conduct the correspondence of the Society and of the Council.

(b) To attend the meetings of the members and of the Council, and minute their proceedings.

(c) At the ordinary meeting, to announce gifts presented to the Society since their last meeting; to read the names of all new members and of candidates for admission, and the papers communicated to the Society, which have been directed by the Council to be read.

(d) To have immediate superintendence of all persons employed, to make arrangements for the meetings of the Society, and to take charge of all maps, books, furniture and other effects.

50. It shall be the more especial duty of one of the Honorary Secretaries to conduct, as may be directed by the Council, correspondence with Foreign Societies, and with persons resident abroad.

51. In addition to the Honorary Secretaries, there shall be a paid Secretary appointed by the Council, whose duties shall be to assist the Honorary Secretaries, to issue the notices of the Council and of the Society, and to act under the instructions of the Council.

The foregoing Rules, as now amended, were approved and adopted at a meeting of the members of the Society, of which due notice had been given to the members, held in the Town Hall, Manchester, Wednesday, October 3rd, 1894.

(Signed) GEORGE, *President.*
 S. ALFRED STEINTHAL, *Chairman.*
 F. ZIMMERN, *Honorary Secretary.*
 JAS. D. WILDE, M.A., *Honorary Secretary.*
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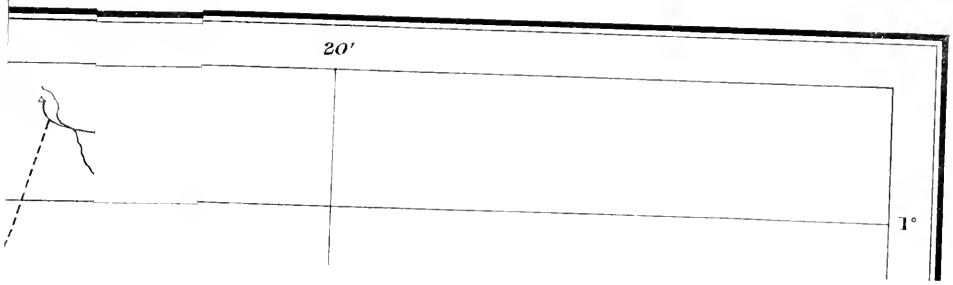
[COPY]

It is hereby certified that this Society is entitled to the benefit of the Act 6 and 7 Vict., Cap. 36, intituled "An Act to exempt from County, Borough, Parochial, and other Local Rates, Lands and Buildings occupied by Scientific or Literary Societies."

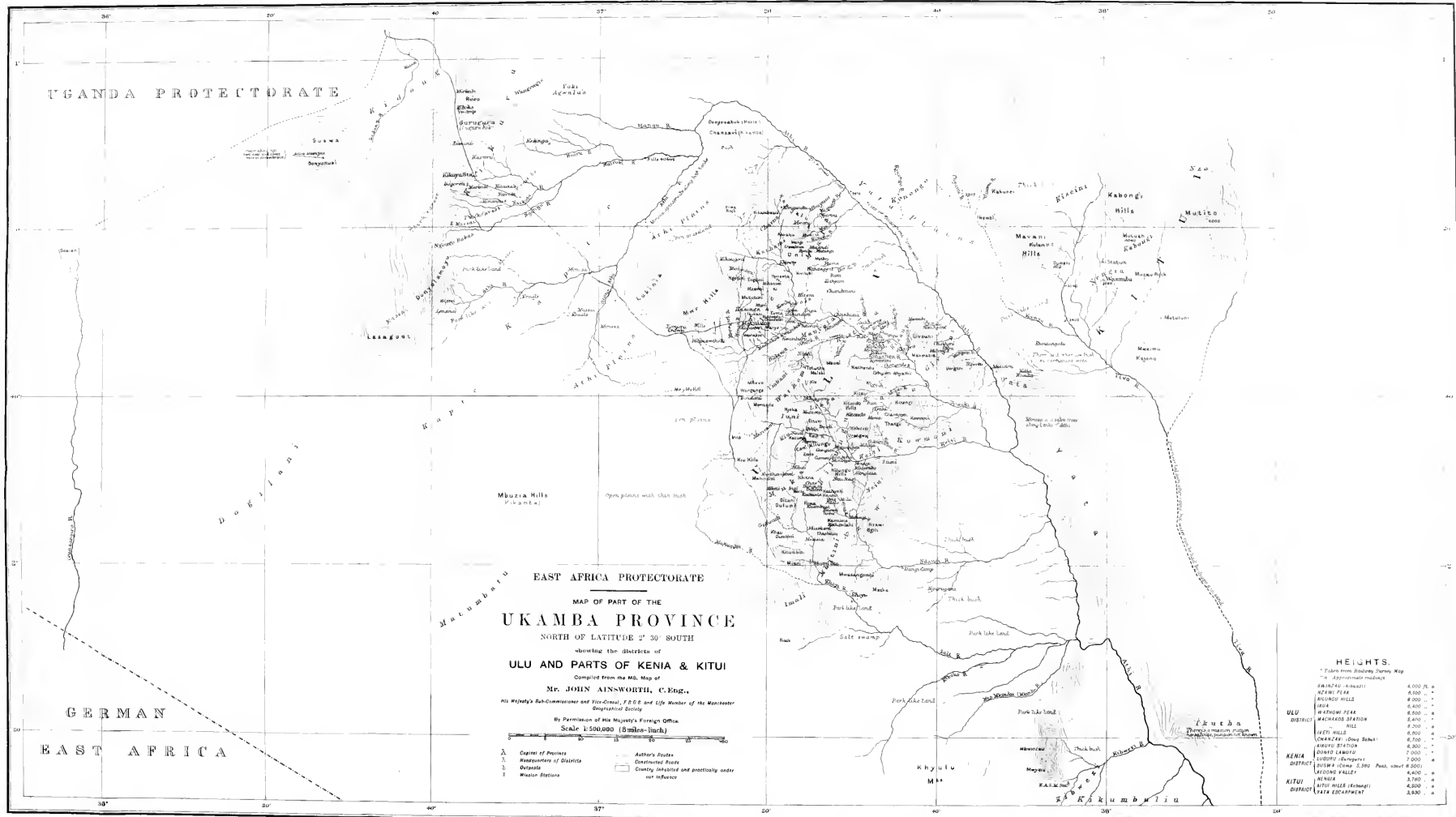
Seal of Registry of
 Friendly Societies.

This 15th day of January, 1895.

E. W. B.



The Map for Mr. Ainsworth's paper is not yet completed; it will be given with the next number of the Journal.



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1901.

THE
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FOR 1901.

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"The Gold of Ophir, Whence Brought and by Whom? By Prof. A. H. Keane, F.R.G.S."
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THE FOUR HONORARY SECRETARIES OF THE SOCIETY.

1. Mr. FRITZ ZIMMERN (Vice-President of Society).
 2. Mr. J. D. WILDE, M.A.
 3. Mr. J. HOWARD REED
 4. Mr. C. A. CLARKE (Hon. Sec. "Victorians").

THE JOURNAL

OF THE

MANCHESTER GEOGRAPHICAL SOCIETY,

BELGIUM: WHAT IT IS LIKE, THE BEST WAY TO SEE IT,
AND HOW TO GET THERE.

By MR. LUKE H. WOODS, M.J.L.

[Addressed to the Society in the Library, Tuesday, March 19th, 1901,
at 7-30 p.m.]

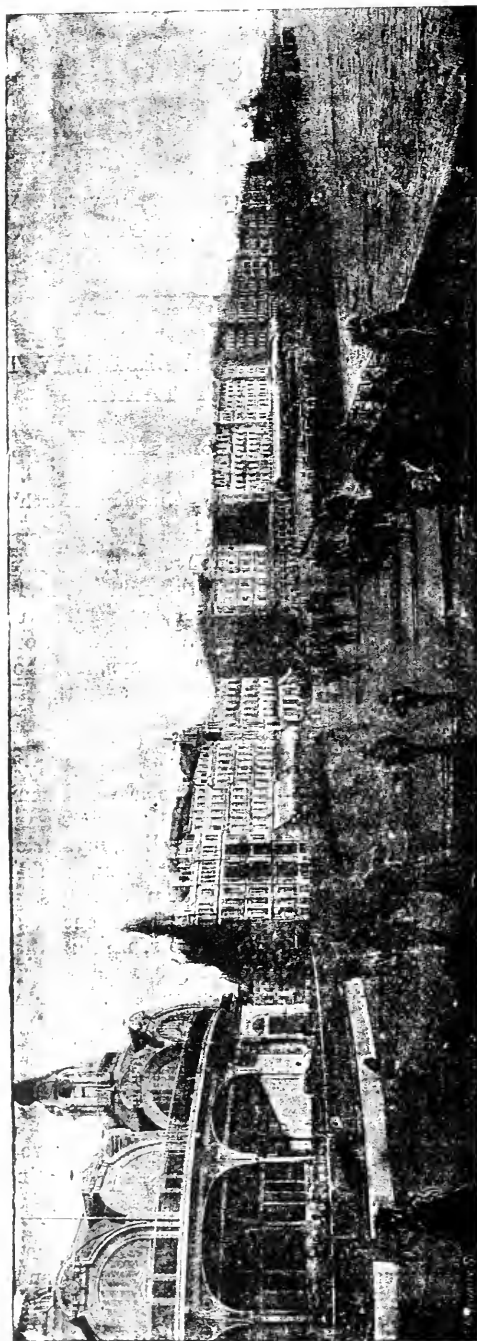
THE above was the title of a lecture delivered to the members of the Manchester Geographical Society, in the Library, at 16, St. Mary's Parsonage, on March 19th, and for which, as well as the following articles, we are indebted to Mr. Luke H. Woods, M.J.L., of London, the English Lecturer to the Belgian States Railways, by the courtesy of whom we are favoured with the loan of the blocks for the accompanying illustrations.

Belgium is divided into two distinct regions, the western and northern portions being made up of wide plains which, especially in Flanders, are of unequalled fertility; the inhabitants are of Flemish race and language. To the east and south, where the Walloons are to be found, is a land of wood and mountain, with scarped cliffs, mysterious horizons; the grand valleys of the Meuse, Lesse, Houyoux, Amblève, Ourthe, Semois, and the rugged summits of the Ardennes ranges. This, in the present day, is also the land of various industries, such as coal mines, smelting furnaces, iron foundries, glass works, machine factories, and the like; while Flanders still maintains the arts and fabrics for which Flemish towns have so long been famous, no less than for their extraordinary development of artistic architecture arising from long-established prosperity and the sumptuous taste of the people. The cathedrals of such towns as Bruges, Ghent, Brussels, and Antwerp, to be presently noticed, are not only magnificent buildings, but contain priceless treasures of painting and sculpture, while some of the town halls and public markets are no less magnificent, and are crowned by bell towers which symbolise the aspirations of freedom and independence.

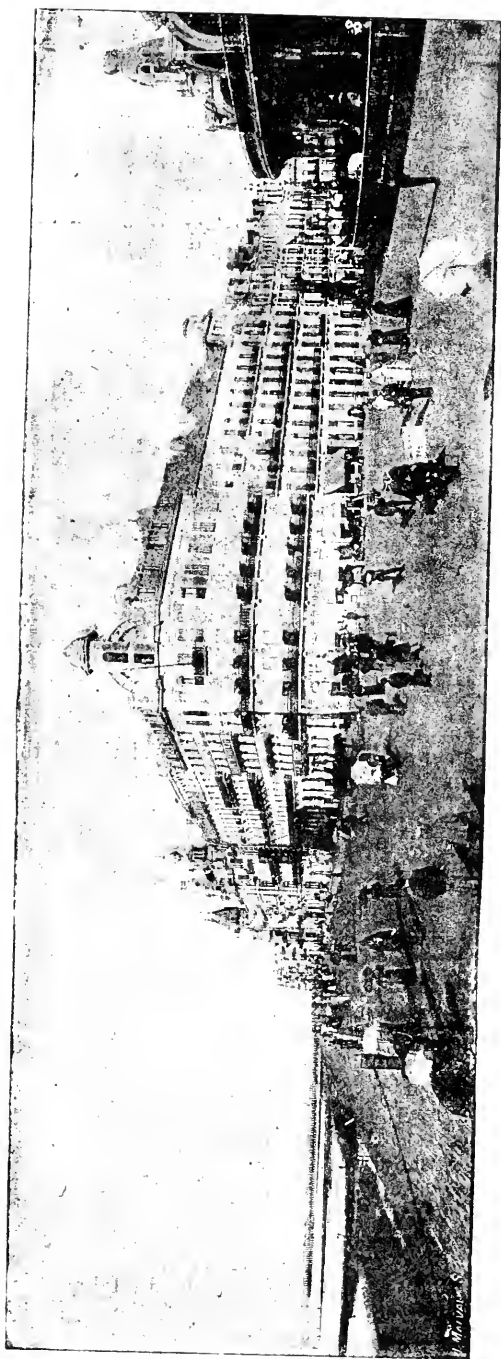
The following sketch will show what is most worthy of the attention of the tourist:—

Ostend is considered the most important seaside town on the Continent, and for many years has been called "the Queen of watering places." The population is upwards of 30,000, but during the summer

VOL. XVII.—NOS. 1-3—JAN. TO MARCH, 1901.



OSTEND. LE DIGUE AND THE KURSAAL.



OSTEND. LE DIGUE EST.

season the town is the rendezvous of an important and fashionable colony of strangers, arriving from all parts of the world, in all about 250,000 visitors (English people forming the largest contingent), and every year their number increases considerably.

The vast enterprise begun by Colonel North and continued by his executors, will also continue to attract English visitors, and is sure to make Ostend a favourite resort of English society during the summer months.

The journey there is easy, most agreeable, and at exceptionally moderate fares. The service is performed from Dover to Ostend, and *vice versa*, by the Belgian mail boats three times daily. These boats are noted for their speed, magnificent accommodation, and perfect security. The crossing is made in a little over three hours.

Ostend is the summer residence of His Majesty the King of Belgium, who possesses a fine villa on the digue facing the sea. Leopold II. has a great attachment to Ostend, and often arrives early in June and remains till the end of October.

Ostend as a railway station is admirably situated. It is the starting point and terminus of the international through trains to and from Cologne and Germany, Basle, Switzerland, Vienna, St. Petersburg, and Constantinople. New routes will also shortly be opened by the Belgian Government jointly with the International "Sleeping Car" and "European Express Trains" Company.

The digue of Ostend is the longest and finest in the world, extending from the pier to the King's villa, a distance of over three miles. Its entire length is lined with elegant and palatial villas, as well as with numerous first-class hotels, such as are only met with in capital towns.

In the middle of the digue stands the Kursaal, with its immense concert hall, capable of seating 6,000 people. The Kursaal proves a great attraction, and is the centre of all the gaieties of the season. It is the property of the town, and nothing is neglected to satisfy the tastes and wishes of the subscribers and visitors. Two concerts are given daily by a magnificent orchestra, and the programme often includes oratorios, musical festivals, choruses, grand organ recitals, etc. After the evening concerts there is always a ball, held either in the large Kursaal ball-room or in the beautiful Salons of the Casino in the Town Hall close by. During the season there is a good operatic company at the theatre.

The beach, which extends the whole length of the digue, is without doubt one of the principal attractions for visitors and children. Its long stretches of firm, fine sand are absolutely free from shingle, and the tourist can walk for miles along the coast even at high tide. The bathing is unique—no other beach affords such an animated scene. The bathing machines are tastefully painted, and are drawn in and out of the water by horses. It is not unusual in the month of August for 6,000 persons to bathe daily.

Besides the amusements of the Kursaal and Casino there are various other attractions for visitors. The promenade on the digue and pier is most delightful, both for pedestrians and cyclists. From the pier, which advances far into the sea, there is a splendid view over the North Sea. On clear days the sand hills of Zeeland (Holland) are just visible on the east coast; while, on the west coast, the small Belgian bathing

towns of Mariakerke, Middlekerke, and Nieuport, and, at night, the lights of the Dunkirk Lighthouse can be clearly seen.

Ostend possesses a splendid racecourse (where race meetings are held every Sunday during the summer months), also a bicycle track, an aquarium, and a hydropathic establishment. Every year there are international yacht races between Dover and Ostend. The centre of the Place d'Armes is occupied by a large pavilion, where public concerts are given. In the centre of the town are the Leopold Gardens, very prettily laid out with shady walks. On the outside of the town, twenty minutes' walk from the Place d'Armes, is the Marie Henriette Park, a favourite resort for walking, driving, cycling, boating, and fishing. This beautiful park is in great part due to the generous intervention of Leopold II. The environs of Ostend are interesting and easy of access. The coast on either side is dotted with small watering places, the most important of which are Blankenberghe, Middlekerke, Nieuport, Heyst, etc.; they are all connected by tram-line, and are reached in fifteen, thirty, and fifty minutes respectively.

At Easter and Whitsuntide fêtes, concerts, balls at the Kursaal, representations at the theatre, etc., are organised. Every year these holidays bring over a considerable number of visitors, so that the town presents almost as animated an appearance as at the beginning of the summer season.

Ostend contains hotels, restaurants, boarding-houses, and apartments of every description, from the most fashionable to the most modest; and visitors will find in all of them good accommodation at moderate charges.

The town of Blankenberghe, which is quite close to Ostend (fifteen kilometres off), and of which the resident population is only 4,000, is visited annually by about 170,000 people, who come there chiefly on account of the beautiful bathing. The sands are very fine and hard, and on the sea front, over a mile in extent, are erected some very beautiful houses, chiefly in the Flemish Renaissance style. The price of bathing tickets is the same as at Ostend. From here the Dutch coast can be seen very plainly; the older parts of the town are picturesque and pretty, and thoroughly old-world, the Rue St. Eglise alone being well worth a visit to the town, where many antique souvenirs can be obtained. It is also a splendid cycling excursion from Ostend and back in a day trip.

Ypres, a few kilometres only distant from either Ostend or Bruges, had in the year 1247 a population of 200,000, which at that time was enormous, but towards the sixteenth century the wealthy cloth manufacturers, with their workpeople, emigrated to England. The town, however, has preserved all its fine old buildings, among which may be noted the Hall aux Draps, the Belfry, and the Maison Communale (the latter is an enormous building of the Pointed style of architecture, designed with the best possible taste, and the woodwork of the interior is very beautifully carved); the Hotel de Ville, in which is a fine room called the Chambre des Echevins; the Museum, which has a very remarkable front; and the Church of St. Martin, which contains the curious remains of the furniture and many of the valuable treasures from the ancient Cathedral. They are all well worthy of a visit, the façade of the Town Hall, which is built in the Italian style, more closely

resembling a beautiful piece of lace than a public building, while the Salle de Mariage therein must be seen to be properly appreciated.

The city of Bruges in the height of its splendour in the fourteenth and fifteenth centuries, had a population of 200,000 inhabitants, and was in many respects the rival of Venice. Its commercial prosperity was only equalled by its artistic treasures, and to this day it is noted for the architectural beauty of the ancient houses, the elaborate decoration of which is the best possible proof of the former grandeur of this old town. The principal objects of interest are the Belfry (108 metres high), the carillon by which is world-renowned; the Museum of Antiquities; the Hotel de Ville (a beautiful Gothic building containing the Library, the ceiling of which is specially worthy of notice); the Church of St. Basile, also called Chapelle du St. Sang; Le Palais de



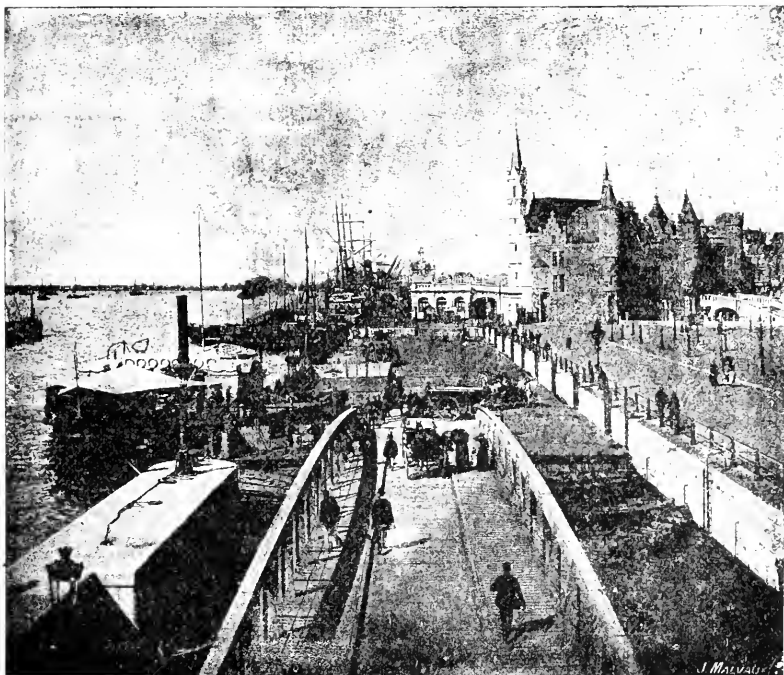
LE MAISON DU FRANC, BRUGES.

Justice, in which is a magnificently-carved chimney-piece (reproductions of the same may be seen at the South Kensington Museum, and also at the Museum of Decorative Art at Brussels); the Tonlieu; the Hotel Grutluis; the Quai Vert; the Fish Market; the Statues of Breydel and of Coninck, Jean Van Eyck, and Memling; the Fine Art Academy; the Cathedral (Eglise St. Sauveur), containing many works of art; l'Eglise de Notre Dame, with a tower 120 metres in height, and l'Hôpital St. Jean, in which are the *chef-d'œuvres* of Memling.

The Cathedral contains 29 escutcheons of Knights of the Order of the Golden Fleece, established here in 1429: Notre Dame holds the remains of Charles the Bold and Mary of Burgundy, and Michael Angelo's "The Virgin." Maison de la Corporation des Arquebusiers (St. Sebastien), and many other antique and beautiful monuments far too

numerous to be here dealt with, and which only a visit with plenty of spare time to thoroughly explore this ancient city can properly accomplish.

The city of Ghent is built upon twenty-six islands, which are joined together by eighty bridges. The principal industries are spinning, weaving, and factories for the construction of machinery; but it is also well known on account of its numerous horticultural establishments, where many people are employed in the discovery of new plants, and a great number of these gardeners have gone over to England to manage the hot-houses there. The principal objects of interest are the Hôtel



ANTWERP. THE QUAY AND THE STEEN MUSEUM.

In this Museum is a Globe formerly the property of the Great Mercator.

de Ville (a very fine old building, containing a chapel, a Gothic chamber, and the Salle de Mariage); the Belfry, with its wonderful carillon and tower, surmounted by a dragon in gilded copper which is in reality larger than an ox; the Church of St. Bavo, containing numerous fine examples of the old masters, and which contains one of those rare and curious old pulpits (or Chairs de Verité, as the Belgians term them) for which this kingdom is so deservedly famous, this particular one representing the "Expulsion from Eden"; the ruins of the older portion of the nave, which was badly damaged by a fire, caused by the church

being struck by lightning early in the nineteenth century, also show it to have been originally very beautiful; the Statue of Jacques Van Artevelde, in the Place de Vendredi, and quite close to it is an enormous gun of the fourteenth century; whilst the Palais de Justice, built as it is right on the water's edge, is very interesting to visitors, and the Maison de Batellier, situate on the Quai of the same name, always commands attention by its antique architectural features.

Antwerp, on the Scheldt (250,000 inhabitants), has a very peculiar appearance, with its old houses and its numerous statues of the Holy Virgin placed at the corners of the streets. It is one of the most important Continental seaports, and is noted for its churches and statues.

The Place Verte, in the centre of which is the statue of Rubens, and on one side is the Cathedral, which is considered to be one of the finest Gothic buildings in Europe. The interior contains, among many other treasures, numerous masterpieces of Rubens, Murillo, and Otto Venius. The trellis-work tower is 123 metres high. The Grand Place, in the centre of which is the celebrated Fontaine du Brabo, by Jef Lambeaux, and on one side is the Hotel de Ville. L'Eglise St. Paul contains some superb paintings by Rubens and Vandyck; l'Eglise St. Jacques, a perfect museum of artistic treasures, with a great number of valuable paintings; Le Musée de Peinture contains many grand paintings by Rubens, Vandyck, Teniers, Jordaens, Decrayer, Wappers, Leys, and the great masters of the Flemish school; Le Musée Plantin, a curious Flemish building of the sixteenth century; Le Musée du Steen, the ancient prison, full of lugubrious recollections; La Bourse, a modern building; and the Zoological Gardens, considered to be one of the richest and most curious on the Continent.

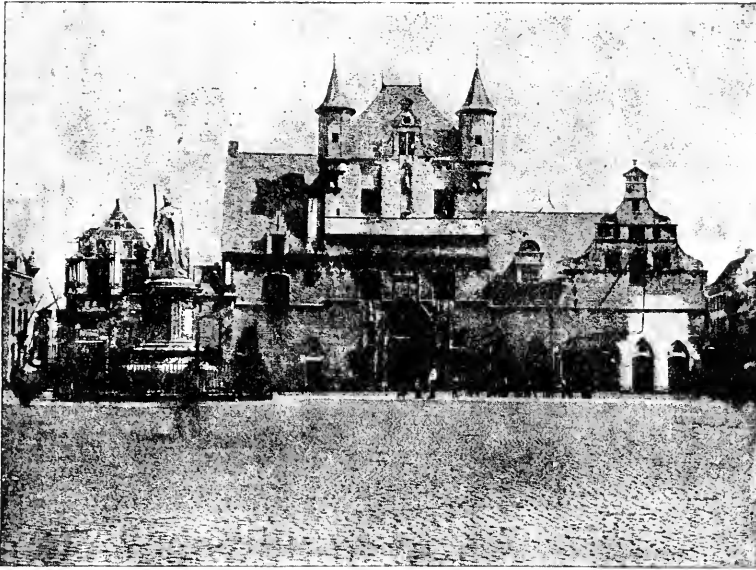
Louvain is celebrated for its University and Hotel de Ville. The latter, which is similar to those at Brussels, Oudenarde, and Bruges, is a marvel of architecture. L'Eglise St. Pierre, which faces the Hotel de Ville, is very remarkable inside. Especial notice should be given to the Tabernacle (22 metres in height), the gallery, and the wrought-iron lamp.

Malines, which contains 46,000 inhabitants, is celebrated for its Cathedral, which is a fine Gothic building, with an unfinished tower 99 metres in height, and contains another of those famous pulpits—this one representing the "Garden of Eden"—as well as a most exquisitely-carved confessional box. In the square is the statue of Margaret of Austria, surrounded by a circle 13.70 metres in diameter, exactly the diameter of the dials of the tower. The Church of St. Jean contains the celebrated painting of the "Adoration of the Magi," and the Church of Notre Dame that of the "Miraculous Draught of Fishes."

Brussels, the capital of Belgium, contains half a million inhabitants, and is one of the most elegant cities of Europe. It is surrounded by pretty boulevards, and is divided into two parts—the high town and the lower town—between which runs a tunnelled river, on which are the Boulevards du Nord, Anspach, and Hainaut.

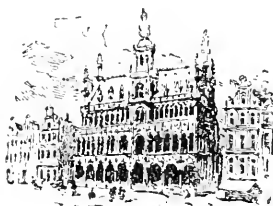
The chief sights are the Bourse, the interior of which is richly decorated; the Grand Place, a marvel of architectural beauty, each house being a gem in itself, and having two superb monuments: the Hotel de Ville, a most remarkable building, almost lace-like in effect, and having a lovely tower covered with stone trellis-work, the interior

being noted for the richness of its decoration, and the Maison du Roi (formerly the Halle au Pain), which has a marvellous façade, and directly faces the Hotel de Ville, in the Grand Place, with the Maison



MALINES. LE GRANDE PLACE AND LES HALLES.

Flamande also in close proximity; the Musée Communal; the St. Hubert Galleries; the Cathedral of St. Gudule, which, being built upon an eminence, shows out well, and having



BRUSSELS. MAISON DU ROI.

an interior well worthy of special notice; the Park; the Place Royale, with the statue of Godefroi de Bouillon; the Museum of Modern Paintings, close to the Place Royale; the Museum of Antique

Paintings in the Rue de la Regence, with a beautiful sculptured entrance; the Church of Notre Dame du Sablon; the Square du Petit Sablon, surrounded by lovely screenwork of forged iron, with forty-eight elegant pillars, each surmounted by a bronze statue—a work of such beauty that it is considered one of the artistic gems of the world. In the middle of the Square are the statues of Counts Egmont and Horn, surrounded by eight others; and just at the back of the Square is the Hotel du Due d'Arenberg, which contains a fine collection of artistic treasures. See



BRUSSELS. COLONNE DU CONGRÈS.

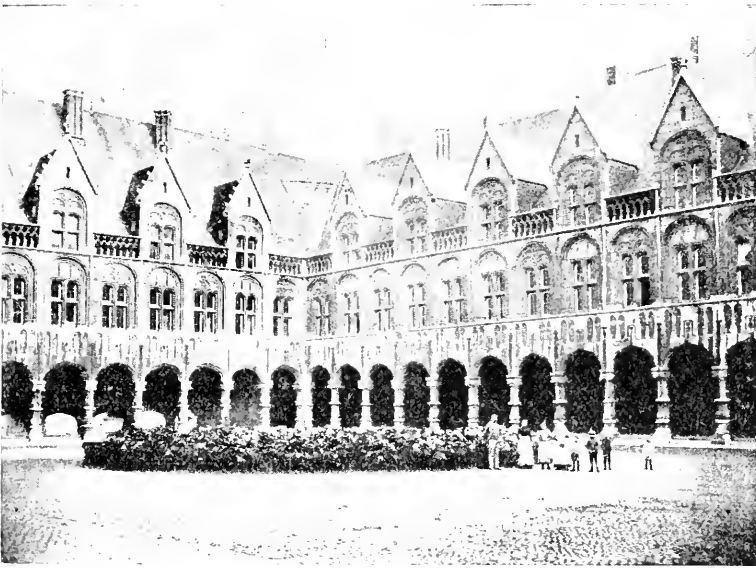
also the Synagogue; the Conservatoire de Musique; the Palais de Justice, one of the most beautiful buildings in Europe; the Botanical Gardens; La Place des Martyrs; Le Théâtre de la Monnaie; the Natural History Museum; the Parc Léopold, in which may be seen two unique specimens of gigantic antediluvian creatures; the Musée Wiertz, containing a collection of the paintings of this master; the Musée d'Armures, situated in the ancient fortress called "Porte de Hal" the Musées du Parc du Cinquantenaire, at the bottom of the Rue

de la Loi, containing antiquities, art treasures, and reproductions of the finest sculptures; the Bois de la Cambre, a lovely park; the Parc de Laeken, which is the Royal residence, and contains a monument of Leopold I.

A few miles from Brussels (Midi Station) is the famous battleground of Waterloo, with its famous Lion Mound, and many historic spots.

Liège, on the Meuse, is a beautiful town, picturesquely situated at the foot of a mountain in a nest of foliage.

The chief sights are Le Palais des Princes Evêques, a magnificent building, which is now used as the Palais de Justice; the courts are marvels of architecture, and one of them has a great resemblance to the wonderful Court of Lions at the Alhambra in Spain.



LIEGE. PALACE OF THE PRINCE BISHOP.

The Cathedral dates from the year 968, and contains a beautiful pulpit and several works of art. L'Eglise St. Jacques (splendid interior). The University contains a valuable library and a rich collection of coins and medals. The Botanical Gardens are noted for the fine collection of palm trees.

A visit to the town would not be complete without taking a trip to Seraing by steamer, which enables one to obtain a view of the town and its surroundings. The factory of Messrs. Cockerill at Seraing is well known, nearly 12,000 people being employed at the works.

Tournai is a fortified town in Hainault, the old *Civitas Nerviorum*, on the Scheldt, 30½ miles from Mons. Its ancient Cathedral is a colossal edifice, with pictures by Rubens, and marble groups by Duquesnoy; a

lotty Gothic choir, rich stained glass; Norman nave, with a double triforium; grand apsed transepts; and five towers. Other old churches are St. Quentin, St. Jacques, and St. Brice. Many old houses. Museum in the fine Town Hall, at St. Martin's Old Priory. In Grande Place is a statue, erected 1863, to the Princess d'Espinoy, who defended the town against Farnese, 1583.

Namur offers nothing very attractive with regard to grand buildings, but is delightfully situated in the midst of woody mountains and steep rocks, and its beauty is all due to nature. It has an Archæological Museum which is most interesting, and contains a fine collection of Roman and Frank antiquities found near the town.

From Namur boats perform the journey up and down the River Meuse to Dinant, Hay, and Liège.

The Ardennes comprise the most picturesque part of Belgium, and are composed of a group of mountains and valleys abounding with views alternately wild, graceful, and rural. On a rough and rugged land one finds old forests, luxuriant with thick vegetation, green fields, charming hills, clear rivulets flowing peacefully through the wide valleys, and also, in contrast, wild uplands with dashing torrents, shut in by bare rugged rocks.

The scenery here is most picturesque, especially in the valley of the Meuse between Namur and Dinant. This magnificent river is charming, and impresses one with its grace like the Rhine itself. From Dinant to Namur it flows through a fairy-like landscape to which nothing else can be compared, and winds itself through a consistent succession of stately old mansions, fine modern country houses, and coquettishly pretty pleasure houses, with their red and white roofs half hidden in masses of foliage.

Dinant is a small town on the Meuse at the foot of a high rock, on the top of which is a fort reached by steps cut out of the rock, from whence there is an exquisite view. The old church, with its curious pear-shaped steeple, stands out from the long row of houses on the side of the river, and gives the town a very picturesque look. From its exceptional situation Dinant becomes quite a centre of charming excursions and walks to points of interest, such as Montaigle, Poilvache, Bouvignes, les Fonds de Lefie, Furfooz, Château Thierry, La Grotte de Freyr, Anseremme, Le Château de Walzin, the Rocher Bayard, the Royal Castles "d'Ardenne" and "de Ciergnon," Waulsort, Yvoir (noted for trout fishing).

Dinant and its surroundings are visited by numerous tourists from all countries, and many English families stay here during the summer season. Hotel charges are moderate, and one may have "pension" at from 7 to 8 francs per day, and even for less, if a long visit be arranged for.

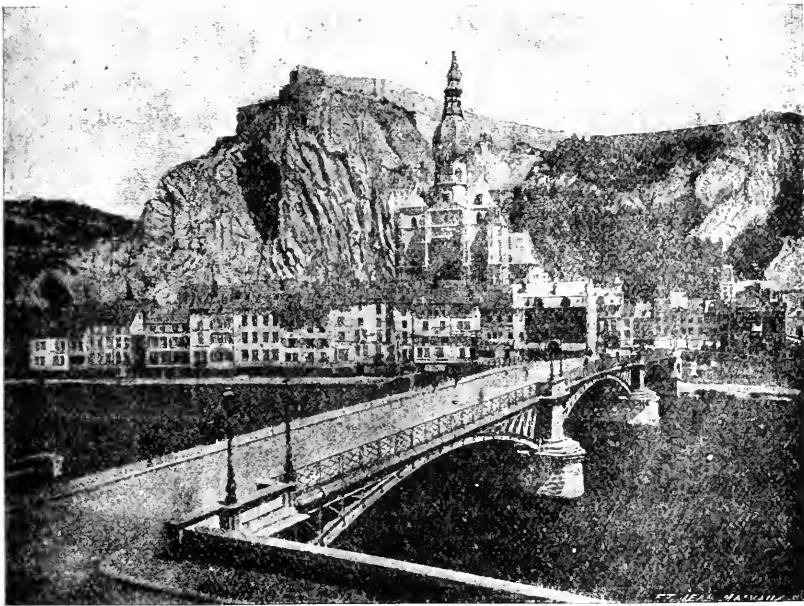
Although Rochefort can be reached by rail, a great many tourists prefer to make the journey by coach from Dinant. (Fare from 4 to 6 francs each, according to the number of travellers.)

The wonderful Grottes de Han et de Rochefort are quite unique and celebrated, and can be easily visited. The views are charming. Visitors walk in file through the winding paths, accompanied by guides with torches, forming a fantastic procession. The exit from the caverns has

a wonderful effect. Nearly 100,000 visitors yearly testify to the popularity of these wonderful caverns.

Chaudfontaine is reached in a few minutes from Liège by rail. It is a charming spot, much frequented by foreigners, who come here to use the mineral and hot-water springs, which have such beneficial effects to those suffering from gout, rheumatism, liver affections, etc.

Spa is a small but charming town, celebrated for its mineral waters and pure air. It is called the Vichy of Belgium, and is quite a centre of gaiety and pleasure, from twenty to thirty thousand people staying here every year during the season. The town is situated in a nest of



DINANT (ON THE MEUSE).

The fine bronze statue by Weirtz is here, and a fine Altar Piece in the Church by him.

foliage, and is surrounded by vast English-like gardens, from whence may be seen the most picturesque landscapes. The mineral waters, which are strongly impregnated with iron, are noted for their beneficial effects in cases of anæmia, chlorosis, consumption, dyspepsia, kidney troubles, and children's ailments.

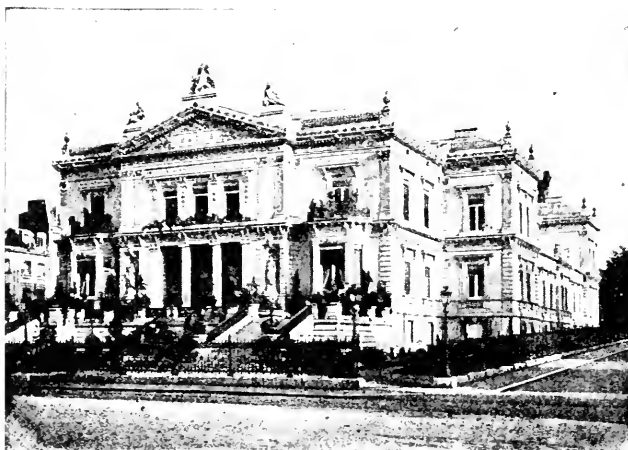
At the hydropathic establishment hot and cold douches of mineral or soft water, vapour baths for rheumatic or gouty patients, mud baths, etc., are obtainable. The Casino contains saloons, reading rooms, and a splendid ballroom, where dances and concerts are frequently given. The town orchestra performs twice a day in the kiosks on the public promenade.

Among other attractions may be mentioned the theatre (comic operas, comedies), the racecourse, cycling track, lawn tennis grounds, pigeon shooting, horse shows, golf, cricket, etc., fêtes, firework displays, fishing, shooting, boating, riding, etc. Good hotels, restaurants, and cafés.

The Spa mineral waters are supplied for exportation by the "Compagnie Fermière des eaux" under municipal control.

The excursion to the Cascade de Coë is specially interesting, on account of the picturesque scenery between Spa and Coë. The waterfall is formed by an arm of the River Amblève.

The Barrage de la Gileppe is one of the most important works of the kind in Europe, and is destined to form a reservoir of the waters of the Gileppe, in order to supply the numerous cloth factories at Verviers. The dam is formed by a wall of masonry 82 metres long at the foot, and



SPA THE HYDROPATHIC ESTABLISHMENT.

66 metres thick; the top of the wall being 235 metres long, and surmounted by a colossal lion of stone 13½ metres high. The reservoir contains 17 million cubic feet of water. The scenery is splendid.

The most renowned spots in the Ardennes, which is called Switzerland in miniature, are the small towns of Houffalize and La Roche, situated on the Ourthe, in a narrow valley. These lovely spots are the rendezvous of many English families, who spend part of the summer season here, and the centre of many charming excursions in the Ardennes, among which those through the valley of the Ourthe offer exceptional interest. The river winds itself by the sides of the mountains in a most capricious manner, forming a wonderful landscape with the rocks and the well-wooded hills.

This part of the Ardennes, which extends to within the Grand Duchy of Luxembourg, offers special attractions to those making a walking tour.

The inns are everywhere noted for their cleanliness and extreme cheapness, the "pension" being from 5 to 7 francs per day; for a lengthened stay often from 4 francs 50 cents to 5 francs.

NOTE.—The cheapest and altogether the best way of seeing Belgium is by taking a 15 days' season ticket, which gives one boat journey from Dover to Ostend and back, and as much railway travelling *all over Belgium in every direction* on the States Lines as may be desired during such 15 days, costing for first-class actual accommodation throughout £2 5s. 11d., but a photo of the person for whom the ticket is desired, measuring 2in. deep by 1½in. wide, must be supplied at the time of applying for same. Messrs. Dean and Dawson are agents for the Belgian State Lines, and can supply these.

CHAUCER MEMORIAL LECTURES, 1900.*

Read before the Royal Society of Literature.

This work is the collection of a number of lectures delivered before the above society with a view to celebrating the 500th anniversary of the death of the great poet Chaucer. Their object, as expressed in the preface, is to bring under the notice of the general reader the publication of such "giants of energetic research, commentary and criticism," as Tyrwhitt, Dr. Furnivall, Professor Skeat, and others of equal learning, for the thorough study of whose literary monuments no one but the deeply read Chaucerian student is capable.

The lectures are the works of different scholars, and have a varying interest, though all certainly contain a great amount of entertaining as well as instructive matter. Perhaps the most interesting lecture of the series is that which apparently has the least connection with Chaucer, a lecture on "The Paston Letters," by Mr. Samuel Davey, F.R.S.L. This production, though not dealing directly with Chaucer in his literary aspect, nevertheless throws great light upon his writings, as well as upon his own life and surroundings, by presenting to the reader a comprehensive and vivid picture of the life and manners of the fourteenth and fifteenth centuries as revealed in the private letters of the Paston family.

Another interesting lecture by Mr. William E. A. Axon, F.R.S.L., deals with the "Italian Influence on Chaucer," especially discussing his indebtedness to Dante, Petrarch, and Boccaccio. The author enters into the question as to whether Chaucer's acquaintance with Petrarch was merely through the medium of books, or whether it was actually a personal one.

"The Life and Characteristics of Chaucer," by Mr. Percy W. Ames, F.S.A., who also edits the completed volume, is very interesting and instructive.

"The Poetical Contemporaries of Chaucer," by Mr. H. M. Nubert-Terry, F.R.S.L., though apparently dealing with writers of no great importance, is justified, as the author claims, by the fact that "every circumstance, however trivial, is important, which tells us something of the building up of the great English language and literature."

An interesting disquisition also is that of the "Portraits of Chaucer," by Mr. M. H. Spielmann. It seems, however, that the author is allowing an unmerited amount of accuracy to be credited to mediæval portraiture, by claiming to prove from the portrait in the Ellesmere MS., where Chaucer is represented on horseback, that the poet had very short legs. We do not see why the author could not argue from the same badly drawn picture that the horses of that day were no bigger than an average human being, as the poet is certainly as big as the steed that carries him. It is surely evident that the picture was drawn to fit the gap in the MS. was thrown entirely out of proportion by the body in the first instance being drawn too big and the rest of the drawing being compelled to be rendered too small in order that the whole might fit the space allowed for its reception.

* Edited with an introduction by Percy W. Ames, F.S.A., Secretary R. S. L., 172 pp. and illustrations (no index). London: Asher & Co., 1900.

THE OBER-AMMERGAU PASSION PLAY.

By Mr. J. C. BLAKE, F.R.G.S.

[Read to the Society in the Library, Tuesday, February 26th, 1901,
at 7-30 p.m.]

MIDWAY between Munich and Innsbruck is the Bavarian highlands district, the central part of which is the pretty little village of Garmisch, situated in a sunny plain and on the beautiful river Loisach, which flows through it. On the north it is enclosed by Kramer, 6,510 feet; on the south by Wetterstein, 7,765 feet, and Zugspitz, 9,760 feet, the highest mountain in Germany; on the east by Krottenkopf, 6,996 feet, and Karmendel, 8,317 feet; and on the west by Daniel, 7,638 feet. Amongst these lofty peaks surrounding this typical South German village we spent a most agreeable week, taking daily drives for miles through some of the forests, and embracing visits to the Eckbauer Alp, Grasseck, Partenkirchen, with its carving school, Werdentel's Castle (ruin) and woods, Badersee and Eibsee (lakes), Mittenwald, with its violin factories, the beautiful waterfalls of Lentaschklamm, Lautersee Lake, Plansee Lake and waterfall, concluding with a visit to the pretty Rissensee Lake, approached by an easy walk through a wooded path from the village, and commanding a striking view of the Waxenstein, whose precipitous cone, in the early morning, is often perfectly reflected in its waters.

Leaving Garmisch we drive, by way of Oberau to Ober-Ammergau, over the new mountain road (constructed from proceeds of former Passion Plays, at a cost of about £25,000), by way of Ettal, a distance of about twenty-three miles, two days before the first performance given on Sunday, May 20th, 1900.

The conventual buildings at Ettal are very extensive. The place was suppressed in 1803, but has been recently repurchased by the monks, who will use it as a priests' seminary, and it is to the monks here that we owe the Passion Play and carving schools at Ober-Ammergau, the late Father Daisenberger, their last surviving pupil, and Pastor at Ober-Ammergau, having extensively revised the text between 1840 and 1850, and this version has been generally adopted since. But of more value than the artistic taste with which he conducted the representations of the Passion was the manner in which he, as Pastor, trained his flock, and raised the minds of the players to the necessary earnestness and pious enthusiasm which gave the play more the character of a religious service.

The idea of a Passion Play is supposed to date back to the fifteenth century, but it was not until the outbreak of the plague in 1633, in all the surrounding villages, that a vow was made by the people of Ober-Ammergau that its performance should be given every ten years in token of their penitence and gratitude after their deliverance.

The first performance was given in the spring of the following year upon an open-air stage, and continued with varying fortune until 1674. It was again given in 1680 and every ten years until 1770, when an interdict was issued on the 31st March, putting an end to Passion Plays in the whole Electorate. The sturdy Ammergauers promptly replied by handing in their first petition to the Ecclesiastical Court of Justice, at Munich, on the 20th April the same year. This was rejected, as also was another application made direct to Max Joseph III., but after the Elector Karl Theodor had taken up the government his consent was ultimately obtained, in 1780, and a decree issued for the performance of the play without any hindrance.

This continued to 1810, when, in accordance with an edict dated September 14th, 1801, the play was stopped, and again a deputation was sent to Munich without success, and it was not until the persevering villagers petitioned the good King Max Joseph direct that the long-looked-for permission was given, March 3rd, 1811, and the play periodically performed, almost without exception, about every ten years since.

The dark days were now at an end, and in the then following years of peaceful development the Ammergauers have, under circumspect management and a continually increasing sympathy, been able to bring the fulfilment of their vow from its former simplicity up to what the play is to-day—an event which has carried the name of the little village in the Bavarian mountains far out into all lands.

Ober-Ammergau, situated on the little river Ammer, which flows rapidly through it, is a clean place, with broad open streets and well-to-do houses, many of which are curiously ornamented outside with scriptural devices in various colours. It is pleasantly surrounded by high hills, conspicuous amongst which is the Kofel rock, with its white marble cross, seen from all parts of the village.

The population numbers about 1,400, half of whom are engaged in the play, chorus, and orchestra, and in the intervening years are mostly occupied in wood carving, in which there is much competition, and whilst the standard of education has always been high and religious observances regular, thanks to the monks at Ettal, wages are very low, and many of the villagers at times are obliged to emigrate and seek employment elsewhere.

The theatre, built in 1899, at the far end of the village, cost about £16,000, which was borne by the community, each burgher being liable as security for a certain amount. It consists of six large arches of iron, each with a span of 140 feet and a height of 65 feet. To these the walls and roof of wood are attached, the exterior being entirely covered with canvas, painted drab. The building seats 4,000 people, all of whom have a numbered seat, and as there is a gentle slope to the open stage, all are able to see. Beyond the stage is the stage scenery, consisting of a Greek theatre flanked on either side by a street in Jerusalem, from photographs taken there, and the houses of Pilate and Caiaphas respectively, all constructed of wood and suitably coloured. The decorations, both inside and out, are on a limited scale, and consist mainly of saints and prophets painted on the canvas-covered walls, whilst painted prophets, carved in wood, chiefly by the performers, adorn the corners. On the rear wall of the auditorium are paintings

representing the first Passion Play performed in the village and a ceremony at Ettal. The building contains fourteen doors, and can be quickly filled or emptied. Notwithstanding the stage being open to the weather, the performance goes on uninterruptedly, even during rain, unless it is heavy and continuous, which explains why the cheapest seats are in the front.

The play itself, based upon Scripture narratives from the Old and New Testaments, is remarkable, and at the outset one cannot but be struck by the sincere and earnest demeanour of the players, both old and young, all of whom, numbering close upon seven hundred, appear to be influenced by strong religious feelings. These simple and devout players appear without any of the usual stage accessories of foot-lights, wigs, rouge, etc., all being perfectly natural, and thoroughly conversant with the respective parts they have to play.

The play begins at eight o'clock and closes at half-past five, with an interval from twelve to half-past one, and on the Sunday morning of the first performance the bell was rung and the village church filled with worshippers before five o'clock, the whole of the players being amongst the number.

Although the outline of the play is based upon the familiar Gospel narrative, there are also included representations illustrative of the types, figures, and prophecies of the Old Testament, the good priest Daisenberger having left it on record that he "undertook the production of the play for the love of my Divine Redeemer, and with only one object in view, the edification of the Christian world."

The play embraces eighteen acts in the life of Christ, and a similar number of tableaux, which preface each act. These are supplemented by a choir of Schutzgeister, or Guardian Angels, numbering thirty-four, who file on to the platform from either side, and, arranging themselves in a slightly concave line, stand in deep reverence, while the Choragus, the veteran Josèph Mayr (who took the part of Christ upon three successive occasions) in a most impressive manner delivers the opening prologue.

The interludes between each scene are filled up with beautiful singing in parts and chorus, which explain the meaning of the typical tableaux, and these are supplemented by an efficient orchestra concealed from view in front of the stage. The dress of these choristers, of both sexes, who occupy the stage for fully half the time devoted to the piece, is very striking, each wearing a coronet with the cross in the centre, and habited in brilliant-coloured robes, falling from the shoulders, with stockings to match, and leathern sandals. The robes are held in place by gold cords, passed round the breast and waist. Immediately before and after the Crucifixion these brilliant robes are exchanged for black.

Reference must be made to the tableaux, all of which are wonderfully striking and effective. The first appears in the opening scene, and represents "The Fall." When the curtain is raised, Adam and Eve are seen flying from the Garden of Eden, where stands the tree with the forbidden fruit, and from its branches hangs the Serpent—the Tempter. An angel, with a sword painted to look like flame, forbids their return.

Another tableau admirably represents the children of Jacob, in the plain of Dothan, "Conspiring to Kill Joseph," who, in his coat of

many colours, is approaching from behind. His brethren are leaning against the wall into which they decide to throw their unoffending victim.

Joseph again figures in another tableau, where he is "Sold to the passing Midianites" for twenty pieces of silver, naturally leading up to Judas' bargain with the Sanhedrim for the betrayal of his Master for thirty.

Another telling scene, full of simple tragic effect, is the "Despair of Cain," prefacing the despair of Judas. Cain—a tall, dark, and stalwart man—clad in a leopard's skin, is dropping the heavy tree branch with which he has slain his brother. Abel, in a lambskin, lies dead, with an ugly wound in his right temple; Cain's right hand is pressed upon the brow upon which is to be set the brand of God.

The two tableaux foreshadowing the Lord's Supper represent "The Lord sending Manna to the Israelites in the Wilderness," and "The Return of the Spies from the Promised Land," with a bunch of grapes of such size and weight as to require two strong men to support it. This is probably one of the most thrilling of the entire series. When the curtain rises, no less than four hundred persons, including one hundred and fifty children from three years upwards, are presented to view, and so perfectly motionless as to lead to the conclusion that they were a group of marble. Moses is in the centre pointing heavenward, where all eyes and hands are directed, whilst the little children are holding out baskets or their aprons to catch the falling manna. The grouping alone of hundreds of persons in a comparatively small space is a marvellous display of artistic skill, and the naturalness of the representation is simply perfect, not a movement being observable in the large group during the few minutes it remains before the audience.

In the second tableau no attempt is made to reduce the size of the bunch of grapes to credible proportions, which the Israelites appear to regard with considerable astonishment.

A few others of the many remaining tableaux are "Daniel before Darius," typical of the false charge against Christ when before Pilate, "The Adoration of the Cross," "The Sacrifice of Abraham," and "The Brazen Serpent." The latter is in combination with a tableau representing Isaac carrying the wood with which he was to be burnt up the slope of Mount Moriah, and a scene from the wilderness, full of spirit and life, represents Moses raising the Brazen Serpent on high before the assembled multitude, so that all who look upon it may live.

The entire series of tableaux are most admirably staged, and for scenic effect, grouping of colour, and grace of posture, reflect the highest credit upon both peasant performers and their willing and painstaking tutors.

The first act in the play, following the Prologue and the tableau of "The Fall," represents Christ entering Jerusalem, seated upon an ass, and clothed in a long garment of grey, over which is cast a flowing robe, the ass being led by the beloved disciple John, attired in green raiment, with a red mantle, and carrying in his hand a long pilgrim's staff. Immediately all eyes are bent upon the prominent figure of Christ. His long dark hair and beard-surrounded features somewhat bronzed from the rays of the hot sun. His face was serenely calm and pensive, and the resemblance to the usually accepted pictures of the Saviour remarkable.

The entry was made amidst the joyous acclamations of the multitude, who, in rapidly increasing numbers, came down the narrow street that runs past Pilate's house, chanting as they came, "Hail to Thee, O Son of David" (admirably rendered by the choir), after which, when Jesus had reached the open space in front of the Temple, he dismounted and blessed them.

He then entered the Temple, and contemplated the strange and busy scene. There were priests engaged with the money changers, and conspicuous among the noisy throng was Nathaniel, chief orator of the Sanhedrim. Baskets were here with pigeons for sale as sacrifices; whilst buying and selling, haggling and bargaining were in full swing both here and in the market-place, exactly as may be seen in Jerusalem at the present day. After a moment's pause, Jesus, looking amazed and indignant, overturned the money tables and released the pigeons, and, cutting short their loud lamentations, he took up a small rope, with which he drove out the astonished traders—the priests alone remaining, who desired to know "by what authority He did these things?" the sequel to which is observed as the play proceeds.

We are then introduced to the scene in the Sanhedrim, where the high priests, presided over by Caiaphas, are plotting against Christ. After which comes the leave-taking at Bethany, followed by the Last Supper, where Jesus is seen washing the feet of His disciples, not omitting the traitor Judas, all of whom look on in amazement. He then went round the table and placed the bread in the mouth of each disciple, and in like manner passed the cup, giving each of them to drink. The lowly and reverent manner of Jesus in this wonderful scene was highly impressive, during which was heard softly in the distance a chorus of angels singing as follows:—

Oh! the lowly, lone, and tender,
 See the Saviour kneeling still
 At the feet of His disciples,
 Loving service to fulfil.
 Oh! this love remember ever,
 Love as He has loved, and do
 Unto others loving service.
 As your Lord has done to you.

The Sanhedrim is again in full session, and we then have the wretched contract by Judas to betray Jesus for thirty pieces of silver, who, upon being asked by Caiaphas, "Art thou steadfastly resolved to do our will?" firmly replied, "I give you my word."

The next scene shows the deep anguish and suffering of Jesus in the Garden of Gethsemane: the traitor's kiss is given, and He is seized and bound, taken before Annas and the vindictive Caiaphas amid the jeers of the crowd, shouting, "Away with Him! Crucify Him!" who, but a short time before, had hailed Him with glad hosannas: He now appears captive and helpless, deserted by His disciples, and, although left without a single friend, calm and dignified. He meekly bears the scoff and derision of His tormentors. His features are perfectly serene and calm, and all throughout these protracted and deeply painful proceedings He gave a most willing and ready obedience, which was continued up to the final scene of the Crucifixion.

We are next introduced to the hasty and abrupt entry of Judas into the Sanhedrim, where Caiaphas has sentenced the Master to death, and after hearing the dread decree, Judas angrily flings the bag of money at the feet of the priests, and in an agony of despair loudly exclaims, "May ten thousand devils grind me to powder! Here, ye bloodhounds, take your accursed blood-money!" After cursing his partners in guilt, he rushes hastily from the hall, and when next we see him, Judas, stung by remorse, appears on the field of blood, a victim of terror, shame and regret, and, gazing wildly around him, tearing the girdle from his mantle, madly exclaims, "Ha! Come, thou serpent, entwine my neck, and strangle the betrayer." With this he tied the girdle round his neck, sprang up to throw the end over the branch of a tree, when the curtain falls and concludes the painful scene, portrayed with almost startling reality, and a sigh of relief goes up from the astonished audience. Thus ends the career of Judas, portrayed by the simple village painter. His part was not only difficult but unpopular, notwithstanding which, it was rendered with that naturalness and subtlety that made it truly marvellous, and stamped him as an actor of considerable ability.

Christ is then brought before Pilate for confirmation of the sentence, who, somewhat hesitatingly, declines to comply with the demands of the priests and their followers, and sends Him to Herod, as King of Galilee. After a brief examination by Herod, He is subjected to ridicule, and mockingly decked in a white robe and sceptre, and afterwards dismissed amidst the taunts of the people. He is once more brought to the house of Pilate, who, attended by his bodyguard and servants, eventually ordered Him to be scourged, to appease the angry multitude, now clamouring loudly, at the instigation of the Priests, for the life of Christ.

When the curtain of the inner stage is raised, He is seen in the Prætorium, divested of robe, and, with hands tied to a pillar, mercilessly scourged by the Roman soldiers, and upon being released falls to the ground faint and bleeding. He is then clothed in a scarlet mantle, and a crown of thorns secured upon the brow by the joint efforts of the four soldiers crossing two staves, which pressed the crown heavily down upon the head, and, with a palm placed in the hand, He is again finally taken before Pilate, when Barabbas is released, and Pilate, washing his hands, as a token that he is not responsible for the act, reluctantly consents to the sentence of death, and, breaking a staff, hurriedly leaves the scene, to the infinite relief of the spell-bound audience, the remembrance of which will live in the memory of all.

The sentence of death, as follows, was then publicly promulgated before all the people:—

I, Pontius Pilate, Viceroy in Judæa of the mighty Cæsar Claudius Tiberius, pronounce, at the desire of the High Priests and Sanhedrim and the people of the Jews, the sentence of death upon a certain Jesus of Nazareth, who is accused of having stirred up the people to revolt, of having forbidden to pay tribute to Cæsar, and of having proclaimed himself King of the Jews. The same shall be crucified outside the city between two malefactors who have been likewise condemned to death for many robberies and murders, and be brought from life to death. Given at Jerusalem on the eve of the Passover.

Jesus is then led away, accompanied by the two malefactors, and followed by a great multitude. The sad procession is then formed on its way to Golgotha, each of the three carrying a cross. Jesus is being urged on by the brutal violence of the attendants, and close by are Mary and her attendants, who have come to see what has been done with Jesus. Just as He falls under the heavy weight of the cross He is recognised by Mary, who sees that it is indeed her Son, and with a deep cry of anguish falls back into the arms of her friends, many of the audience joining their tears with those of the sad group. The procession moves slowly on, and when next the chorus enter their bright robes are exchanged for sombre mourning, and whilst they sing with melancholy sadness, in words telling of the approaching sacrifice, the curtain is raised, and the thrilling scene of the Crucifixion is before us. The two thieves are already in their places, one on the cross on either side, their arms tied over the cross by the hands and their feet tied with cords to the beam. The cross upon which Christ is fixed remains upon the ground, and after the inscription has been nailed on, it is slowly raised into position in the centre, when, with feelings of the deepest anguish, every eye is fixed upon the patient suffering of the dying Saviour. The whole of the simple Gospel narrative is most accurately followed: The soldiers casting lots—the promise given to the malefactor—the tender and affecting words to Mary and John—the agonising cries—the convulsion of the body—the last words, “It is finished”—the drooping of the head as the ghost is yielded up—and, finally, the piercing of the side by the Roman soldier, after which comes the breaking of the bones of the malefactors, and, whilst loud bursts of thunder appear to strike terror into the hearts of the Jews, the audience is perfectly spellbound whilst gazing upon so vivid a reality.

Touching, indeed, is the scene where the little band of faithful followers assemble and help to lower the body of the dead Christ from the cross and lay it at the feet of the sorrowing mother. After being anointed, it is reverently placed in a linen sheet and tenderly borne to the tomb, thus bringing to a close one of the most affecting and impressive scenes of the whole play.

The Resurrection follows, when, to the astonishment of the terror-stricken soldiers, who seem to forget that they are armed, the stone falls away from the front of the sepulchre, and Christ comes forth from the tomb and disappears into the garden.

The crowning scene of the Ascension is now presented to us, the feelings of the audience being suddenly changed from gloom and sadness to brightness and joy. The chorus once more appear in their bright apparel, and, led by the Choragus, who announces the glad tidings, they burst forth in fulness of song with the deeply inspiring strain:—

Hallelujah,
Hallelujah, now victorious.
Breaks the Lord the hostile might;
He the Hero great and glorious.
Lifts the grave's sad gloom of night.

The last grand tableau now follows, when the triumphant Christ, in bright apparel, is seen standing on Olivet, his face radiant and glorified.

Beneath Him are grouped, in kneeling postures, the Adorers of the Cross. On his right is Mary, while John and Peter stand on either side, the other disciples being near; Mary Magdalene, Martha, Simon, and Lazarus are in the group, while in the foreground are Adam, Eve, Noah, Abraham, Moses, and a large assembly, gazing in wonder and adoration at the risen Lord, who slowly ascends out of their sight, while the chorus continue the grand and lofty strains of the Hallelujah chorus, at the close of which they pass with graceful bearing from the scene, and the wonderful and imposing Passion Play is ended.

It has been thought by some who have not been to Ober-Ammergau, nor seen the sacred play, that it is highly irreverent, whilst others consider it even blasphemous, and also conclude its promoters are influenced by financial considerations.

I can only say that this was not the opinion of even one of the party of close upon fifty with whom I went, all being much struck with the earnestness and sincerity of every one taking part in the play, and, as Dean Farrar puts it: "It has deepened their religious character, stimulated their devotion, increased their knowledge, and marvellously developed all their artistic and intellectual gifts."

Referring to the disposal of the proceeds of the last play, the following statement, dealing fully with the matter, was published in the *Manchester City News*, on the 5th January, 1901, and may, I think, be fully relied upon:—

"The balance sheet of the Ober-Ammergau Passion Play was issued last December, from which we are informed that the building of the covered hall cost £16,032. The salaries for the 758 persons taking part alone are £15,333, yet averaging only £20 each for forty-seven performances and innumerable rehearsals. They were divided into eleven classes. The highest payments, of £75 each, go to the Christus, the director of the plays and the stage, the conductor of the music, Caiaphas, Prologue, Choragus, and first tenorists. The second class, including Judas, John, Pilate, and Nathaniel, with the best singers, received £56 10s. each. From that the classes drop at the rate of £5 to £7 10s. down to the lowest, with £2 10s. each for the children who took part. It surely is to the credit of the Ammergauers that in the distribution of their harvest nobody is forgotten. Each village poor, each invalid, the widows and those prevented by accident from taking part, receive a donation of from £2 10s. to £5 each. The sons who are away on military service, the postmen, policemen, the shepherd on the Alp—all receive small gifts varying from £1 to £5. In addition each "family" received £5, partly more to equalise the amounts received by those in the higher classes and those only used in the crowd, partly, too, as compensation for the risk undertaken in guaranteeing the capital raised for building. Compared with 1890, the grown-up performers, on an average, receive this year from £5 to £10 each more. The total receipts from 173,785 paying visitors were 1,035,000 marks (£51,750). The remaining sum of about £11,300 will be used for communal purposes, public buildings, and charitable institutions."

It will, I think, be seen from this statement that the authorities have not been extravagant in dealing with the large amount received, nor do any of the actors appear to be overpaid considering the large number of rehearsals required. It has always been the custom to

appropriate a considerable sum to roads, public works, charities, etc., and the authorities appear to continue it.

There are only two inns in the village for the accommodation of visitors, but these are supplemented by a large number of small but comfortable and well-to-do boarding houses, many of them kept by some of the performers or their relatives. In all cases the tariff is strictly moderate, and no attempt is made at imposition, the authorities exercising a close supervision over their management, and as the theatre holds 4,000 people, and this being about the extent of the accommodation in the village, all visitors staying in these houses are provided with a ticket of admittance upon paying the usual charge. In the house where a few of our party stayed we were waited upon by the niece of Johann Zwink, who took the part of Judas, she herself being one of the chorus.

It might be considered somewhat invidious to make a preferential selection for reference to any of the actors where all succeeded in attaining so high a standard, but the wonderful impersonation of Christ by Anton Lang, and the patient and long-suffering demeanour of Anna Flunger, as Mary, combined with all the other characters in the play, succeeded in producing a profound and lasting impression upon the vast audience, most, if not all, of whom appeared to leave the hall with a higher appreciation of the true doctrine of the Christian faith, and of the imperative necessity of an individual effort to strive with all diligence to carry it out.

THE SILVER MAP OF THE WORLD. A Contemporary Medallion, Commemorative of Drake's Great Voyage (1577-80). A Geographical Essay, including some Critical Remarks on the Zeno Narrative and Chart of 1558, and on the Curious Misconception as to the Position of the Discoveries made by Martin Frobisher in 1576-7-8, which crept into the Cartography of the North Atlantic and of the North-Eastern Coast of America through the errors of the Zeno Chart. By MILLER CHRISTY. Illustrated by Fac-simile Reproductions of the Silver Map and seven other Contemporary Charts referred to, and by two Diagrammatic Charts. 72pp. Index. London: Henry Stevens, Sons, and Stiles. 1900.

THIS British Museum Silver Map to commemorate Drake's great voyage was discovered by Mr. Christy, and has admirably served as the text upon which he enlarges to correct some early cartographic errors. In seven chapters—the Drake Medallion, the Silver Map, Drake's route as shown by dotted lines on the Silver Map, the causes of the misconception of the position of Frobisher's discoveries, the date of the Silver Map, a chapter of concluding remarks and a note on the Hatfield House Frobisher's Map (1576), and a note on the Zeno Narrative and Chart of 1558—Mr. Christy completes his essay. The sober treatment of the partly obscured details of these early navigators has thrown considerable light upon them, and must have the effect of considerable modification of ideas which are shown to be faulty. The essay is a lucid statement of the case and makes a very valuable contribution to our Geographical literature. The *fac-simile* of the Map and the reproductions are also useful prints.

EN ROUTE TO THE PASSION PLAY.

By Mr. C. H. BELLAMY, F.R.G.S.

[Read to the Society in the Library, February 26th, 1901, at 7-30 p.m.]

HAVING determined to assist at this year's decennial Passion Play, we resolved to travel to Ober-Ammergau by one of the less frequented routes, in order to view some of the lesser known, but otherwise highly interesting German cities. Stuttgart, the capital of Wurtemberg, is hardly a tourist's city, but it is one which well repays a careful visit, for, thanks to its numerous talented architects, it has taken a prominent part in the modern revival of the Renaissance forms of art. Its public buildings are designed on a magnificent scale, and its private residences, with their plant-covered loggias, give an idea of elegance, refinement, and comfort such as it is difficult to surpass. The centre of the city is a truly royal square—the Schloss Platz—with quite a number of avenues of superb chestnut-trees, all in full bloom, and in the centre a column to the memory of King William. The old Castle on the south side of the square dates from the middle of the sixteenth century. It forms an irregular quadrangle, with round towers at the corners, and a court surrounded by arcades in the middle. A peculiar feature is the inclined plane in the eastern tower, by which the second floor is reached instead of by the usual staircase. The city Art Gallery, although not very extensive, is fairly rich in paintings, there being examples of Titian, Tintoretto, Paolo Veronese, Claude Lorraine, Guido Reni, Van Dyck, Rembrandt, and some of the old German masters. My book-loving friends will be interested to learn that Stuttgart is the most important centre of the book trade of South Germany, there being nearly one hundred publishing firms here.

About two hours' ride distant is Ulm, which, if not remarkable for much else, possesses a magnificent Cathedral, with a renowned spire, inasmuch as it is the highest church spire in the world; indeed, I only know of one stone building which exceeds it in height, the Washington Monument, with its 555 feet, being some 25 feet higher. This remarkable tower and spire, so massive and so beautifully decorated, was designed and begun by Ulrich Ensinger, the third of the cathedral architects, just at the close of the fourteenth century, but it was only completed ten years ago. Its proportions, and also those of the church, are not so true and elegant as is the case with our highest English spire, that of Salisbury Cathedral, and so when taking a first view of it from the entrance of the large square in which it is situated—a square of about similar dimensions to the Close at Salisbury—its appearance of height is distinctly disappointing. However, as you get nearer this feeling fades, until at last close to it one is lost in reverential awe in gazing at its dizzy height. On entering the church I was immediately impressed with the magnitude of its dimensions; indeed, it is the largest Gothic church in Germany next to the Cathedral of Cologne. Originally a nave with two aisles, all of equal breadth, the latter were divided in 1507 by slender round pillars, and covered with star-vaulting, so as to form four aisles. Passing the pulpit with a beautifully

carved cover, we come to one of the unique features of the interior, the ciborium, to the left of the entrance to the choir. A ciborium was originally an arched vault or canopy raised over the high altar, in imitation of the mercy-seat above the ark in the Jewish temple, containing the pyx or the wafers themselves; but here it is outside the choir, and to some extent resembles a bishop's throne. It is 93 feet in height, and beautifully sculptured in stone, the reclining figures on the rail of the staircase being particularly striking. Another peculiarity is the octagonal holy-water basin, which completely encircles one of the pillars of the nave. The choir stalls are boldly carved in oak, and have remarkable life-sized carved busts at the end of each row on both sides of each aisle. All these interesting features are at least four hundred years old. Ulm was interesting in another respect, for it was here that we got our first view and photograph of the Danube, although it is anything but an attractive river at this point.

A ride of about an hour and a half, and we reach Augsburg, so called after its founder, the Emperor Augustus, 12 years B.C. In 1276 Augsburg became a free imperial city, and was the great centre of the traffic between Northern Europe, Italy, and the Levant; but the discovery of the Cape route to India, and of America, dried up the sources of its prosperity. Whilst at the zenith of its prosperity in the fifteenth and sixteenth centuries, several of its citizens enjoyed princely wealth and power, and married their daughters to princes. One family must be mentioned, as traces of it are found all over the city. The Fugger family were originally but poor weavers, but in the course of a century they became the wealthiest merchants in Augsburg, perhaps in Europe. They were the Rothschilds of their age, and, like them, ennobled, and they frequently replenished the exhausted coffers of the Emperors Maximilian I. and Charles V. Joh. Jacob Fugger "the Rich" in 1519 founded a separate quarter of the city, still called the Fuggerei. It consists of fifty-three small houses, tenanted by indigent Roman Catholic families at nominal rentals, but has its own walls and gates. In Augsburg's principal street, the broad and handsome Maximilian Strasse, is the Fuggerhaus, the grand old mansion of these merchant princes, the whole of the frontage being adorned with frescoes illustrating the history of the family and the city. Close to is the "Three Moors," one of the most interesting hosteleries in Germany. This noble street also possesses three beautiful fountains, that at the Ludwigs Platz being the fountain of Augustus, the founder of the city. Across the square is the early seventeenth century Rathhaus, with its Golden Hall, so called from the profusion of gilding—one of the finest halls in Germany—with rococo decorations in the Italian style. It has never been restored, and, with its four ante-rooms, is in excellent condition. The Cathedral, an irregular Gothic pile, begun in 995, consecrated in 1006, and altered 1321-1431, is not specially remarkable, but we were fortunately present at a remarkable week-evening service, when it was filled to its utmost capacity by a devout congregation, who heartily joined in a hymn sung to a strikingly beautiful tune. At the other end of the street are the two churches of St. Ulrich, two churches practically under one roof—one Protestant, of course, closed; the other the Church of St. Ulrich and St. Afra, Roman Catholic, and always open. Of its many remarkable features I must only mention one, a highly

elaborate iron screen of the sixteenth century, shutting off the nave and aisles, and which when seen from the choir produces a striking effect of perspective. It seemed as if one were looking at the entrances to a conservatory with arched arbours and tiled floors. A notice of this city would be incomplete without a reference to the famous "Augsburg Confession," a reformed creed framed by Melancthon, Luther, and others, signed by the Protestant princes, and presented to the Emperor Charles V. at the Diet of 1530, held in the hall of the Episcopal Palace, now used as a royal residence. At subsequent Diets an "Interim" and a "Peace of Religion" were issued and concluded.

Reluctantly we leave this interesting old city, still quite mediæval in many of its buildings and streets, and in one hour's time we find ourselves at Munich. This city is better known, and so I need not describe it here. Munich merits an article to itself. A visit of three days was all too short for its picture galleries, public buildings, fine squares, fountains, and streets; but the Saturday before the Passion Play had arrived.

It was a rainy morning when we took the train for Ober-Ammergau, but this made no difference in the desire of the hundreds anxious to get there. Leaving Munich, we soon came into view of the Lake of Starnberg—or, as the Germans call it, the Würmsee—a favourite summer resort for the Munich people. It is 1,914 feet above sea level, and although about thirteen miles long, is never more than three and a half miles broad, generally much less; still it gives a circumference of about thirty miles, and, being surrounded by woods which stretch themselves to the tops of the hills, with an enchantingly beautiful background of the Bavarian Alps, apparently rising immediately from the surface of the water, but really twelve or thirteen miles distant, presents as beautiful a picture of inland water as can be found in Europe. The prettiest of villas constantly peep out of clearings in the woods, with chateaux, old castles, and royal palaces. About a quarter of a mile from the pier at Schloss Berg is the royal palace in a large park, where that unfortunate and eccentric monarch, King Louis II. of Bavaria, perished in the lake on June 13th, 1886. The next town of importance is Tutzing, a charming watering-place, about half the size of the town of Starnberg. The old chateau above the old part of the village was formerly the seat of the noble and historic family of the Tutzings, but since the sixteenth century has passed through various hands. The railway now leaves the lake, and, turning inland, stops at the very ancient town of Wilhelm, on the right bank of the Ammer, a river running from the lake of Ammer, not far from the Starnberg lake, and whose name we shall find again in Ober-Ammergau. This old town is on the old Roman road from Verona to Augsburg, and was known to the Romans as Abudiacum. Its history is tolerably well known from contemporary records since A.D. 754. This is the best station from which to visit the mountain called the Hohe (High) Peissenberg, sometimes called the Rigi of Bavaria. Then to Murnau, which until recently was the end of the railway to Ober-Ammergau; but an electrical railway has just been constructed between the two places, a distance of about fifteen miles, having a normal gauge for goods and passenger trains. Although primarily intended for use by electricity, still steam power can also be used, and, as our train was a through one, our locomotive, with an

additional one to help it, took us on, but with considerable difficulty at times, for in some places the gradients are at 30 per cent, the rise from Murnau to Ober-Ammergau being seven hundred feet. Several times I thought our engines would stop, because we had heard in Munich that during the previous week this had actually occurred, and the train had had to be divided and taken on in sections, the last section being, of course, very much delayed. However, the ride, although slow, was one of surpassing beauty, the hills of the southern mountain range, with the clear and rapid mountain streams, presenting an ever-changing panorama of beauty. Another beautiful lake was the Staffelsee. Its waves wash shores of great variety in form, with numbers of creeks and coves, with wooded hills that slope gradually down to soft green meadows, in which we admire pretty villages and see cattle grazing. One peculiarity of this lake is that it has seven small islands in it, and the largest one is particularly interesting. It is the wood-covered islet of Wörth, which was once in possession of the Romans, as excavations in it abundantly prove. Tradition says that St. Boniface, the Apostle to the Germans, preached under its magnificent lime-tree—a tree which is a thousand years old. Presently rises in front of us the steep Kofel rock, rugged and bare, surmounted by an iron cross, which dominates the village of Ober-Ammergau, and finally the steeple of the parish church and the hideous cover of the theatre greet us, informing us that our destination is reached, and that at last we are on the classic ground of the Passion Play. The rain has long since cleared away, and the sun shone brightly, but the former had left plenty of evidence of its power in the thickly-churned, white, chalky mud with which all the streets and lanes abounded; indeed, it was so plentiful that an American lady was so overcome that she had to sit down to express her feelings, and her disgust that at last the States had been beaten, for in a plaintive tone she lamented: "I never—I never—waal, I never did see such mud!"



HALL I' TH' WOOD.

EXPLORATIONS IN MAROTSELAND AND NEIGHBOURING REGIONS.

By MAJOR ST. HILL-GIBBONS, F.R.G.S.

[Addressed to the Society in the Memorial Hall, on Wednesday,
January 23rd, 1901, at 7-30 p.m.]

My present expedition entered the Zambezi at Chinde, the objects being to complete the work I commenced in 1895-96.

Lewanika, the paramount chief of many tribes, residing in the Upper Zambezi territories, rules over a vast country, with an area more than twice the size of Great Britain, roughly extending from the Congo Zambezi watershed in the north to 18 deg. S. latitude in the south, and from the Kwito in the west to the Kafukwe in the east.

The objects then were:—

(1) To determine the geographical limits and tribal distribution of Lewanika's empire.

(2) To supply what might be called a "skeleton map" of Marotseland, by travelling the country in all directions.

(3) To study its resources and commercial possibilities; and

(4) To ascertain how far the Zambezi and her affluents can be utilised as practical waterways.

We landed at the Chinde estuary of the Zambezi on July 16th, 1898, with two aluminium launches, 26 ft. long with a 6ft. 6in. beam, and a barge 22ft. 3½in. long. On the 18th we left Chinde in the "Centipede," chartered from Sharrer's Zambezi Traffic Company to take us, bag and baggage, to the foot of the Kebrabasa Rapids. With me were Captain Quicke, King's Dragoon Guards, Captain Stevenson-Hamilton, 6th Inniskilling Dragoons, and Mr. L. C. Weller, of Trinity Hall, Cambridge, who had an engineering training, and, fortunately for the expedition, cut short his university career in order to be one of us: Captain Boyd Alexander, 7th Rifle Brigade, an energetic ornithologist, who was assisted by Mr. Rammi, a professional skinner, and Mr. Thomas Muller, an accomplished linguist of considerable experience with natives, who travelled from Capetown *via* Mashonaland to join the expedition at Tete.

It was not until September 21st that the whole expedition was encamped at Chikoa, after five and a half weeks' of hard work in readjusting the loads and rushing about in various directions between Mesenangwe and Chikoa to secure the 457 porters necessary to convey the steamers and loads over one of the most difficult countries I have passed through. As we were making but little progress, and it was evident that the steamers were overloaded, it was decided that I had best take Captains Quicke and Hamilton on in one steamer, with Mr. Weller, and supplies for the three of us for six months, and get on to the work of the expedition in Marotseland as early as possible, while the others brought the main supplies forward as best

they could. It was arranged that Mr. Muller, with Captain Alexander and Ramm, should take everything to Zumbo in two journeys, and thence to the Kafukwe confluence.

We reached Zumbo on October 21st, and the next day steamed into British territory. From Zumbo the scenery becomes very fine for some thirty-five miles. The river flows in a deep, clear stream through a well-wooded, mountainous district. On the third day from Zumbo we entered the gorge shown on the maps as "Kariva," known as "Lupata" in the Zumbo district, near the eastern entrance of which we faced the most difficult rapid we had yet met with.

As the Kafukwe is approached the Zambezi widens considerably, and is free from rocks. The Kafukwe enters the parent river in a quiet, deep stream, about two hundred yards wide, with well-wooded banks. It is navigable for some twenty miles.

The Nakabila Rapids offer many dangerous obstacles at this season, so I decided to carry overland to a place three miles up stream. We experienced considerably difficulty with the natives who undertook to convey the steamer and goods. I was annoyed one fine morning to find all but five missing; however, they were brought back again, and henceforward behaved admirably.

The next one hundred miles were pleasant travelling; banks were high and water deep. This stretch is more thickly populated than any other part of the middle river. The interest the natives—the Batonga—took in the steamer was amusing. Now came the last and hardest twenty-five miles of our river journey. It began with the Molele Rapids, then the Sepanga, and after these about twenty others. After unceasing work we found ourselves two miles beyond the Guay confluence; the last eight miles were through a most dismal gorge, which I named the "Devil's Gorge."

A cursory examination of the river ahead convinced me that we had tested the navigability of the middle Zambezi to the full, and that a further advance by water could serve no useful purpose, for I knew that Wanki's—more properly called Zonki's—could not be more than a few miles in front, and that once there we were within touch of Marotseland.

On December 29th we bade farewell and God-speed to Mr. Weller and the little steamer which had been our home for so long. By January 1st, 1899, everything was ready for a further advance. Makwa Yonki's village, on the river, was only a short day's march, so I started thither with Captain Quicke and six boys, hoping to procure porters. Being unsuccessful, I arranged that Captains Quicke and Hamilton should remain with the goods until I could procure boys to bring them forward, so I crossed the river with the intention of making forced marches to Sesheke, a short two hundred miles west. In twelve days I was at Sesheke, where I found my old friend Letia—Lewanika's son and heir—who at once arranged that seventy porters, under two chiefs, should proceed to Makwa without delay. In the meantime I made a hurried journey to Lialui by land, with a view to arranging matters with Lewanika. While in Barotse it rained incessantly, and Lewanika lent me some of his own paddlers for my return journey to Sesheke. I was in Sesheke again on February 23rd.

The rains were practically over when, on March 22nd, I left with Captain Hamilton for the west. We crossed the Zambezi, and travelled

over an almost waterless country lying between the Kwando, or Linyante, and the parent river, reaching Mamili, an important village situated near the former, in $18^{\circ} 3' 30''$ S. latitude, four days later. In the chief Mamili I found a most intelligent and interesting old man.

I crossed the Kwando in $18^{\circ} 7' 30''$ S. latitude, bidding adieu to Captain Hamilton, who followed the course of the river northward.

Lewanika had told me of a stream called Mag'wekwana, which connects the Okavango with the Kwando after the rains. I travelled south till I struck this, and then followed its course westward. I skirted the inundated plain through which the Okavango flows. Two distinct tribes occupy this district—Maiye, whose country extends eastward, and Mampukushu, who had left their country twelve days up stream because their chief, Lebebe, insisted upon selling their children to the Mambare slave dealers from the west coast.

Leaving these people behind, I passed for some days through a district inhabited by bushmen only. They are light in colour, and bigger than their Kalahari fellows.

I entered the Mampukushu country proper in $18^{\circ} 12' 42''$ S. latitude, and about $21^{\circ} 25'$ E. longitude.

Passing through the Makwengari country, I reached the confluence of the Kwito, which I traced for over one hundred miles. Then I travelled north, and struck the Kwito again in $15^{\circ} 7' 52''$ S. latitude, which I was surprised to find so large a river in these latitudes. It is about 80 yards broad, with a deep, clear stream winding through a valley a mile wide, bordered by steep undulations 70ft. or 80ft. high. From here I travelled in a north-easterly direction to the Kwando-Kubangui confluence, which I reached on June 2nd.

I had to abandon my original intention of travelling due north to the Congo-Zambezi watershed, owing to the conduct of my chiefs, so changed my plans, and marched them straight to Lialui. Lewanika was surprised to see me on June 27th, and did not disguise his displeasure at the conduct of his chiefs.

Captain Quicke came in on July 20th, after having made a good journey of some fifteen hundred miles since our parting in Sesheke four months earlier. He had done everything I asked of him, and done it well.

Mr. Weller, whose health had given way, had been obliged to return home, and I heard with great regret the sad news of Mr. Muller's death from dysentery.

Captain Hamilton, after having been deserted by his porters on the Kwando, had sent one of his chiefs to Lewanika, who immediately despatched a relief party. He arrived in the best of health and spirits, having added much to our map of Marotseland.

On September 2nd we ate a farewell dinner, and Captain Quicke and I left the following day, he for the Kafukwe, then north for two hundred and fifty miles, then west, passing south of the Zambesi, and crossing it at Nanakanundu, and thence to the west coast, a journey of over two thousand miles. I would follow the river to its source, thence along the Congo-Zambezi watershed eastward, and then strike northward for the Nile. Captain Hamilton and Major Coryndon (who had arrived on September 12th) were leaving for Chinde and Capetown respectively.

I made the journey up the Zambezi by canoe, taking with me five donkeys—which were driven along the banks—as a reserve means of transport.

The Lungwebungu enters the parent river, through well-wooded banks, in $14^{\circ} 18' 42''$ S. latitude, and is a much larger river than the Kabompo, which follows in 8' further north. On October 8th I quitted the canoes in favour of my five donkeys. The country was of the usual open forest and undulating type, continually rising until the Zambezi source is reached in $11^{\circ} 21' 3''$ S. latitude and $24^{\circ} 22'$ E. longitude approximately. The river itself has its origin in a deep depression at the base of steep undulations, where the water oozes from a black marshy bog, and quickly collects into a well-defined stream.

When nearing the source of the Mumbeshe I overtook the Belgian expedition under Captain Lemaire, and since we were both bound for Lukafa, I gladly accepted his invitation to travel with him.

I left Lukafa station, $10^{\circ} 31'$ S. latitude, on January 6th, and crossed the equator exactly two months later. My route lay through Mweru, Tanganyika, Kivu, and Albert Edward. At Tora the latest papers reeked with the dismal news of Stromberg, Colenso, and Magersfontein, so I abandoned my intention of travelling down the Albert Nyanza and struck east to Kampala, intending to hurry to South Africa *via* Mombasa, if more reassuring news were not forthcoming on my arrival. Happily the latest telegrams showed that the tide of fortune had completely changed, so, after visiting Sir Harry Johnston at Entebe, on Lake Victoria, I turned my face towards the Nile.

I have only one thing more to say, and I say it in proof of my opinion that there has been a great deal too much killing in Africa. During the last ten years my routes, added to those of my colleagues, exceed twenty thousand miles beyond the reach of railroads, and mainly in the most remote parts of Africa of to-day, yet no one of us has found it necessary to take a single human life, and for my part I would have no compunction in travelling again unarmed over any part of these twenty thousand miles.

THE MAROTSE COUNTRY, CENTRAL AFRICA.

“AU PAYS DES BA-ROTSI HAUT-ZAMBESE. VOYAGE D'EXPLORATION EN AFRIQUE ET RETOUR PAR LES CHUTES VICTORIA, LE MATABELLELAND, LE TRANSVAAL, NATAL, LE CAP.” Illustrated with 105 engravings and two maps. Small folio, 320 pages. Appendices, list of engravings, table of contents (no index). Paris: Hachette et Cie. 1898.

“THE KINGDOM OF THE BAROTSI, UPPER ZAMBESIA.” By ALFRED BERTRAND. Translated by A. B. MALL. With illustrations and maps. London: T. Fisher Unwin. 1900.

CAPTAIN BERTRAND's book is well printed, and the illustrations are very clear and sharp. The book has been produced in the usual excellent style of the eminent publishers.

Beginning at Southampton, the author describes his departure, in 1895, from Southampton, and relates the incidents of his travels through

Cape Colony, through the Bechuanaland country, across the desert to the Barotsi country on the Zambesi. He describes his travels with Captain Hill Gibbons' party, and very feelingly acknowledges his obligations to the Missionary Coillard; his descent of the Zambesi, past the great Victoria Falls, and thence through Buluwayo, the Transvaal and Natal, and his return to Europe.

The story is graphically told, and is an interesting account of a portion of Africa not too well known, but of great interest from the travels of Lacarda, Livingstone, Thomson, Serpa Pinto, and others. The appendices are valuable, being a contribution to the history, geography, natural history, productions, and ethnology of the country, and will well repay perusal. The translation of this book should be very welcome to those readers who do not understand French. The following passages are from a review of the translation in the *Standard*:---

In the land of Barotsi the author, a Swiss officer who had joined a party of English explorers, found a region of Central Africa which had been but little visited since Von Holub's journey in 1874. Game in places was fairly abundant, especially zebras, gnus, and antelopes; even the giraffe is not uncommon; lions were sometimes more numerous than was pleasant. Still, the game was sporadically distributed, and at times the party had but scanty fare. The country varies from upland to plain or valley, and is sometimes arid and sometimes marshy. Even to reach it is not exactly a holiday excursion. . . . From Palapye, he crossed a dreary desert, passed along a group of salt lakes, the extent of which, as might be expected, depends upon the time of the year; and then reached the Zambesi, after traversing a region called the Land of the Thousand Vleys. His description may give an idea of the upland—in the highest part some three thousand or four thousand feet above sea level—which forms the watershed between the Limpopo and the Zambesi:—

"For several days now we have had no lack of water; we are crossing the country called the 'Land of the Thousand Vleys,' a region of thousands of ponds and lakes; depressions of the soil, in which the precious liquid is found, at this season, in satisfying quantities, though of varying quality. From Horns-Vley we have been following a trail of heavy sand, which tires the teams badly. This track is for the greater part bordered by thickets, to pass which the waggons have often only just room; here and there we have to cut down a tree. It is an ordeal for the drivers."

The travellers struck the Zambesi at Kazungula, where it is already a stream four or five hundred yards across, and blue as the Lake of Geneva. They were then in the territory of the Chief or King of the Barotsi, from whom they had received authority to travel in his country. But missionaries, in this case representing the Waldenses, have penetrated even to this remote spot. Though they had been only six years at the settlement, which, indeed, had grown up around their house, they had already produced a marked effect. Among their converts was the King's eldest son, the Governor of that district, and the King himself not only is favourably disposed to them, but also, it is said, would openly profess Christianity were it not for difficulties arising from polygamy. An incident quoted by Captain Bertrand suffices to show what has been already accomplished. While he was there the death of a Chief occurred—an event which in old times generally proved fatal to some members of the domestic circle:—

"The Chief Makumba has died since our arrival. According to custom, he was buried by night, a few hours afterwards. His wives having mourned for him three days, their heads were shaven, and the various huts belonging to him were razed to the ground; we saw their remains yesterday. One of his wives, who was accused of sorcery, and threatened with being cast into the river, came to the mission for refuge, where she was received and fed. No one has dared to seek to take her away by force; such is the prestige among

these savages of these few men and women, slaves to duty, who would not even defend themselves if attacked."

After reaching the Barotsi country, the travellers separated, in order to explore it more thoroughly, and between them traversed a large triangular area east of the Zambesi in four or five directions. The lions accounted for two of the horses which they had brought into the country, the tsetse fly for the rest. They had the usual trouble with porters, but none with the inhabitants, who were peaceably disposed.

The Barotsi are not indigenous, but where they came from is uncertain—perhaps from a territory bordering on Matabeleland—and the date of their migration is unknown. They were conquered in 1840 by the Makololo, but obtained their freedom about thirty-five years ago. The nation includes several tribes, possibly not all quite of the same origin. The Chiefs have great, the King has absolute, power; but, as their past history shows, despotism has been tempered by revolution. Punishments are barbarous, as is common in Africa. An offending servant may be "garrotted"—perhaps to death. A child caught stealing may have his hand burnt off; a man may be fastened down on the ground so that for a whole day his back is exposed to the sun, or in the path of a swarm of warrior ants, which nibble him to death. Barotsi worship a Supreme Being, as well as the shades of their ancestors, but have great faith in charms, amulets, and spells of all kinds, including those to drive away dangerous animals. Witch doctors have a good time. Polygamy is general, and the marriage tie is broken as lightly as it is made. Arms and clothing seem much as usual, the latter being of a rudimentary character. The native substitute for a pocket-handkerchief is described by Captain Bertrand:—

"I must not forget one particular, unique of its kind, of the most simplified toilet of a Barotsi: the pocket-handkerchief. This consists of a thin blade of iron, finely wrought, with a handle of the same metal. The whole is perhaps four or five inches long by one or two inches wide, and is hung round the neck by vegetable fibres or tendons. In blowing their noses they use it as a spring, with an extreme dexterity which, I can say from experience, is not a pleasant thing at a camp fire. I may add that these savages have also perfected the manner of blowing the nose which is still practised by certain rustic inhabitants of civilised countries."

The Zambesi was struck at Lealui, the capital of King Lewanika, where Captain Bertrand had an interview with his Majesty, and again met one of his missionary friends. His return was by the river, a journey by no means free from danger; rapids have to be shot, crocodiles are numerous enough to be dangerous in case of an upset, and the hippopotamus is not only very common in places, but also apt to give the crocodile a chance. The females are especially dangerous soon after a young one is born. For the first few days it is hidden in the reeds, and if a canoe inadvertently comes near the spot, it is charged by the mother. The crocodiles also look out for themselves, and are regular "man-eaters":—

"Sesheke is on the bank of the Zambesi, at this point fairly high. The crocodiles are an absolute plague here. Some years ago, when Sepopa was king, malefactors used to be thrown into the river; the crocodiles have retained their taste for human flesh. They commit misdeeds without number, and are always on the watch at the watering-place. They wait for the moment when their victim stoops to give the unlucky creature a violent blow with the tail, whereupon they turn quickly, and drag their prey under water to drown. Two native children from the station disappeared in this manner: one while it was washing, while the second, who was playing with some other children, was carried off under the eyes of its companions. A young girl going to fill her pitcher suffered the same fate. The natives believe that crocodiles are departed human beings, who return under this form to torment the living; they will even point them out as so-and-so, of such a village."

Captain Bertrand visited the Victoria Falls of the Zambesi, and from there travelled southwards to Bulawayo, over a barren, hot, and most trying country, where he fell very ill, and nearly died on the road. The waggon containing the bulk of his collection had to be abandoned, but most of the contents were afterwards recovered. He passed through Johannesburg during the stirring times of the Jameson Raid, and brought his land travels to an end at Durban.

"EXPLORATION AND HUNTING IN CENTRAL AFRICA, 1895-6." By A. ST. H. GIBBONS, F.R.G.S., Captain 3rd East Yorkshire Regiment. Illustrated with eight full-page drawings and twenty-five photographs and map; 408 pages. Appendices and index. London: Methuen and Company. 1898.

CAPTAIN GIBBONS narrates his journey in the same district, in part accompanied by Captain Bertrand. His account is taken up with big game shooting, and he, with his friends, accomplished a great deal of surveying and cartographic work, which will be of great commercial and political value. Since this journey Major Gibbons has again explored the country, and the following extracts detailing this last journey, from the *Evening Chronicle*, are interesting:—

Major A. St. Hill Gibbons, of the 3rd East Yorkshire Regiment, has just returned from a unique journey in Africa, lasting two and a half years, and extending over 13,000 miles. The main object of the journey was to complete the survey of the Marotse country, and to determine the tribal distribution there. A total area of over 200,000 miles has been hydrographically and ethnographically surveyed, and it is expected that the information acquired will be of value to the Imperial Government in settling the Anglo-Portuguese boundaries in West Central Africa. An interesting feature of the work of Major Gibbons and his party was the discovery of the source of the Zambesi, at a point nearly a hundred miles distant from its supposed position.

In order to extend the scope of the expedition, Major Gibbons separated from his companions and adopted the Northern route, travelling by way of the chain of lakes to the Upper Nile. According to his charts, considerable amendments will be necessary, both with reference to the relative position, shape, and extent of most of the great lakes, especially in the case of Lakes Kivu and Albert Edward, the latter of which is now found to be absolutely different in shape and size from what is shown on existing maps. Although continually passing through unexplored country, and frequently across districts said to be inhabited by hostile and even cannibal tribes, and this with a small unarmed party, Major Gibbons has never had occasion to use his rifle in anger, and is proud of the fact that he has never killed a native nor lost one of his boys from death either by disease or misadventure. This, however, has been a common experience of African travel. As a rule, travellers who have had to fight have taken with them parties of armed blacks, and have demanded from native villages food, which could not be supplied without risk of producing a scarcity. Often they have taken food by force, or their followers have attacked women.

Major Gibbons, who on his arrival at Boulogne was interviewed by a Press Association correspondent, said:—

The passage of the Zambesi proved more exciting than we anticipated, and had it not been for the admirable behaviour of the boats, which were specially constructed on the Hodgetts principle, the whole expedition would have been lost. On one occasion, while towing and steaming up some rapids, the boat got wedged on the rocks, and was only got off after great difficulty. It was entirely due to the splendid efforts of both whites and blacks that the boat and those on board were saved.

During the ten months in which we were exploring in the Marots country, we worked independently. The loyalty and energy of Captain Quicke and Hamilton enabled the expedition to increase the scope of its work. Captain Quicke performed what I regard as one of the finest African journeys ever made. He not only crossed the Continent from east to west, but in doing so travelled at least twice as far as was necessary for the mere crossing. As regards the passage of the Zambesi, I give the fullest credit to Mr. Weller, who acted as engineer, and who on many occasions got us

out of a nasty fix. Captains Quicke and Hamilton, on reaching their respective coast ports, heard of the war in South Africa, and both took part in the relief of Mafeking.

While in Marotseland we discovered a tribe of bushmen totally different from any I had previously seen. Timid to a degree, they are of slight build, but not unduly short. They have not thick lips, but rather their lips recede, giving them the appearance of being toothless, and, curiously enough, they have a light skin, being little darker than a sunburnt white man. They are armed with bows and arrows, and have no habitations of any kind. Their food consists largely of snakes, and at the close of their day's hunting they sleep on the ground wherever they may happen to be. They were nude, except for a cat-skin hanging from the waist. I was surprised to find that the traffic in human flesh was actively carried on in the remoter districts.

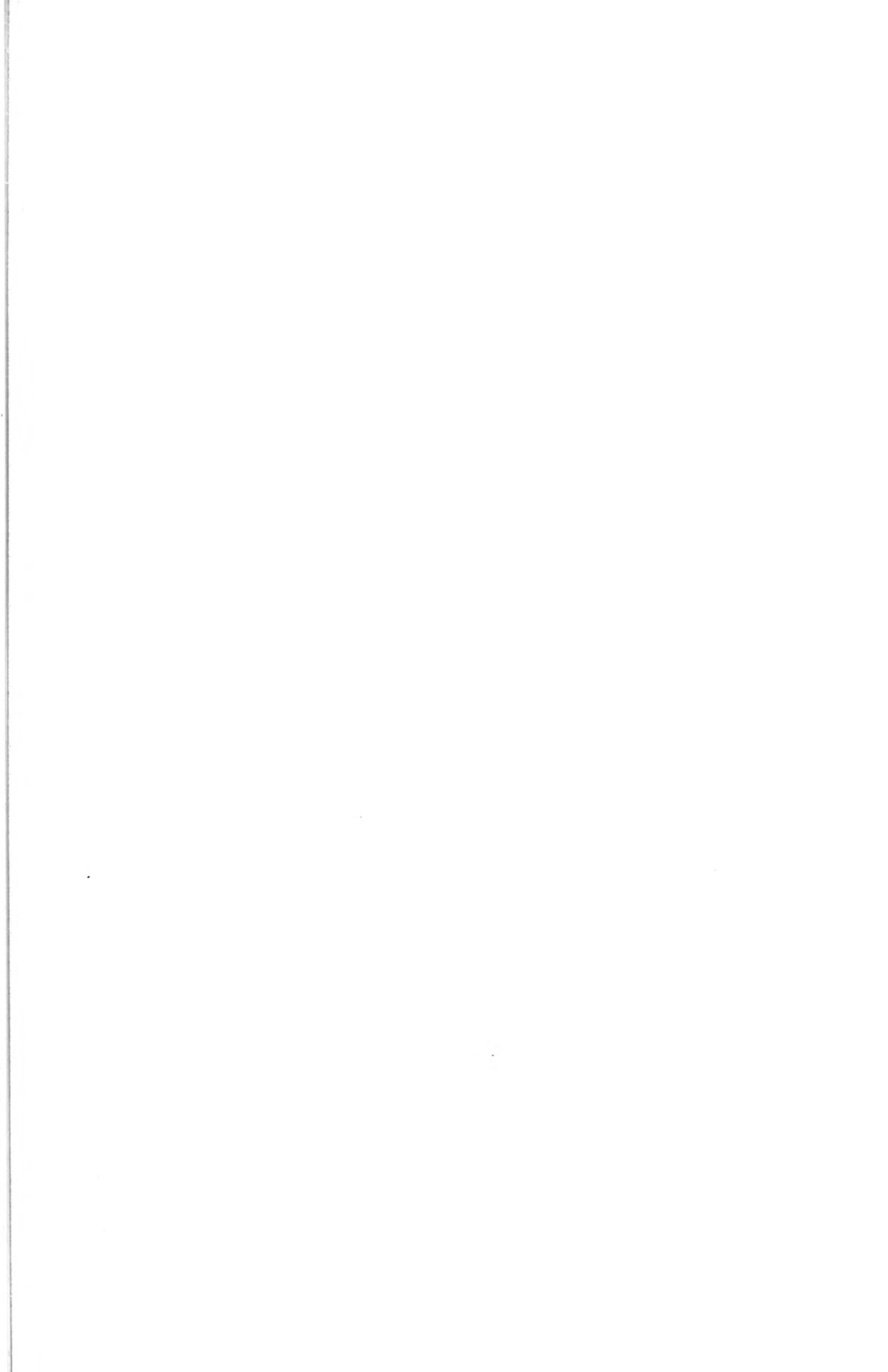
Between Kivu and Lake Albert Edward I traversed the volcanic regions known as Umfumbira (cooking range) in the north, and Kurunga to the south. Though said to be full of cannibals, I can only say that I personally saw no evidence of cannibalism. But on getting near Lake Albert Edward I witnessed the effects of all the curses of Africa at once. I had no sooner passed through recently raided villages, strewn with dead bodies, than I came upon a large village in which the inhabitants were dying of starvation by hundreds. The scene was sickening, and the stench beyond description. About this time I saw a large war party, probably composed of cannibals, on the march to avenge the raidings. On reaching a camp on Lake Albert Edward, I saw five or six villages spring into flame almost simultaneously, telling me that they had accomplished their work.

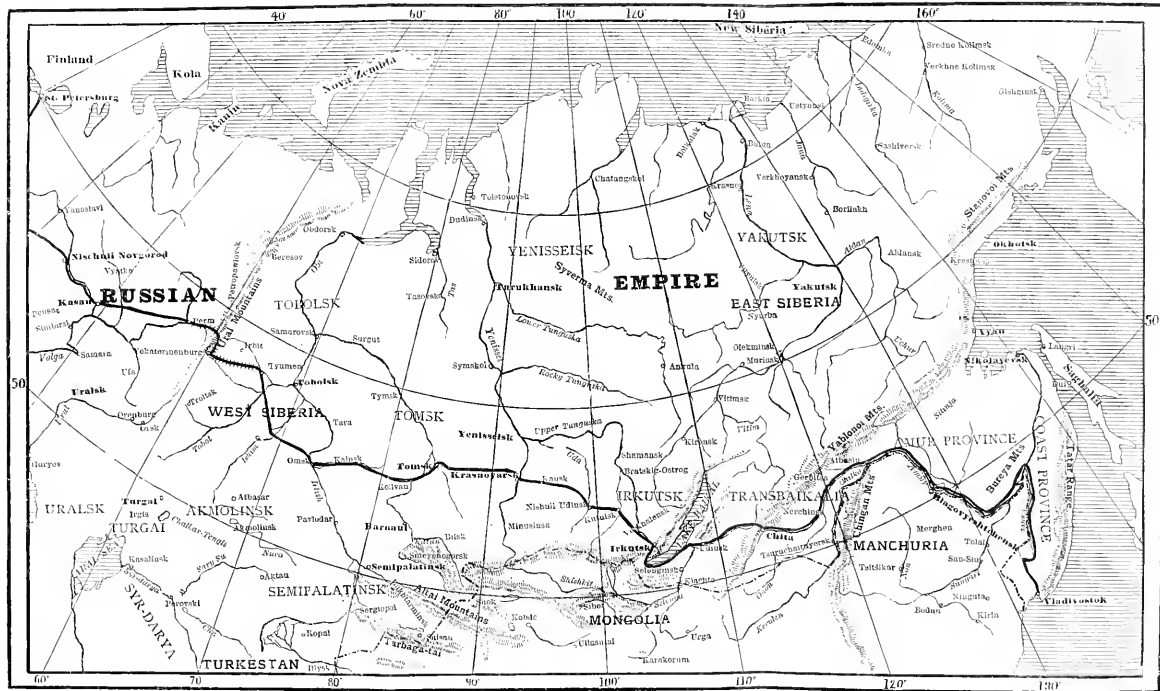
Proceeding up the east side of Lake Albert Edward towards Uganda, I found that the natives, though not openly hostile, would render me no assistance; but there was a marked change on reaching Uganda proper. For the first time since leaving the lower Zambesi I found natives walking about unarmed. Women and children did not run away at sight of the white man, but stood aside and respectfully saluted. Everything was quite quiet in Uganda, and the officials were looking forward with confidence to the effects of the reforms which Sir Harry Johnston was about to introduce.

Both Major Gibbons and Captain Bertrand speak very highly of the work of the missionaries in that district.

THE EVOLUTION OF GEOGRAPHY: A Sketch of the Rise and Progress of Geographical Knowledge, from the Earliest Times to the First Circumnavigation of the Globe. By JOHN KEANE. Illustrated with 19 Maps and Seven Plates. 160pp. A Short Bibliography of the Subject, and Index. London: Edward Stanford. 1899. Price 6s.

THIS is a small volume, but to the working geographer it will be of great use. In many books the information is to be found, but Mr. Keane has arranged, systematised, and made quickly accessible to the student information which he frequently requires, but which he may not always have handy; this book will be ready for use on these occasions. Mr. Keane credits Mr. Bolton with a good share of the map work, and the reproduced maps are most interesting, but we suggest that for the sake of the protection of young eyes it would have been of great advantage if the maps had been larger, so as to be more easily read. We make this mild protest for two reasons: First, because there is a tendency to produce books of reference or for study with small type and most minute diagrams and maps—to the student almost a reason to refuse to use them, and certainly only to be used with great caution—and, secondly, because our members will value Mr. Keane's work very highly and will often find the information they require for their special work. The book is issued at a moderate price, and should command a large sale amongst teachers and lecturers particularly.





THE GREAT SIBERIAN RAILROAD.

(See Map.)

An Address by Mr. ARTHUR MONTEFIORE BRICE, F.G.S., F.R.G.S.

[Addressed to the Society in the Coal Exchange, Tuesday, February 5, 1901.]

I AM going to talk to you to-night for a short time upon a great subject, and it is quite impossible for me to attempt to do justice to it in the hour I have for it. But although this is a subject about which very few people know anything, it is yet an extremely important one. Especially important is it to a place like Manchester, or, indeed, to any great manufacturing centre.

In Siberia there has now been completed the opening stages of a great civilising process; she has been pierced from end to end by the railroad. She is now about to be developed by commerce, manufactures, and industries; and I really do not see why we should not take a good part in that development, and make something out of it for ourselves at the same time.

Now you do not want me to tell you that Siberia is a country of vast extent; you understand that. But how vast exactly few of us probably know. Well, the Russian surveyors tell us that it is some 5,000,000 square miles in area, or, to put it in a more familiar way, it is a hundred times larger than England and two hundred times larger than the mainland of Scotland; or, again, as big as and half again as big as Europe. It is, indeed, a country of big things. For example, it has so great a network of natural communications in the most extensive waterways provided by the numerous rivers that there are no fewer than 27,000 miles of such navigable highroads in Siberia.

A few years ago the whole population of this great country did not exceed 3,000,000; to-day it is over 9,000,000. Side by side with the gradual building of the railway there has grown up a new population. And I would here point out that one great historic fact in connection with the people of Siberia is that emigration has hitherto been largely on the involuntary system. Siberia was the penal settlement of Russia—I say “was” not “is”; for I am glad to remind you that from January 1st, 1901, Siberia has ceased to lie under that stigma. Henceforth Russian criminals will be imprisoned in Russia. From this year forward no exiles will be sent out to Siberia, though I do not doubt that Siberia will provide for its own criminals. But from what a load has the country escaped! And with what infinitely better chances does she now press forward to better things.

At present agriculture is the mainstay of Siberia, and so fertile are the western districts that they are alone capable of becoming granaries for the Old World. And the agriculturists are live men. This year, for example, we have had some butter brought right away from the heart of Siberia to London. To-day it is very poor butter certainly, but we are buying it, just as we are always more willing to buy cheap food from anybody else rather than make it ourselves. And it is only to-day

that it is not good. Wait a year or two. The Government of Russia is a paternal government: it is not a government, at any rate, which think £50,000 a year enough to spend on agriculture. And this Russian Government is founding model dairies and doing everything in its power to teach the agriculturists and help them to turn out superior and marketable goods. So in a year or two we shall like Siberian butter just as we now are said to like Danish and Finnish butter.

Yesterday Siberia was an unknown country as far as the ordinary traveller is concerned. To-day, now that we have a railway running from end to end of it, it is a country through which we can travel, without danger and with slight discomfort, from Moscow, in the heart of European Russia, to Vladivostock, on the Pacific Ocean. We can do it in 21 days, and to-morrow we shall do it in less. How we annihilate space: how we telescope time! Fancy your going to Shanghai in 21 days, instead of the 35 days that it now takes by the swiftest steamers. But the potentialities of the railroad! What a link it is between west and east, between Europe and its teeming factories on the one hand, and China, with its 400,000,000 people, and Japan, with its 35,000,000, on the other! They are all of them ready and willing to trade with us; this railway has brought that trade infinitely nearer—nay, more, it will enormously expand that trade. For a large proportion of trade which has gone by sea will now go by this railway. I think that the immense shipments of tea now made by steamer will soon be made by rail. Up to now something like 60,000,000 pounds of tea—inferior tea—have come through Siberia by the caravan route, but the enormously greater bulk of the good and medium teas have always come by sea. There is now no reason why this railway should not carry it.

East of Lake Baikal, which, by the way, is about half the size of Scotland, you get another Siberia. The western half is a great and apparently interminable plain: the eastern half, however, is mountainous, and the climate, which everywhere is very cold in winter, is here intensely cold, and the winter is much longer.

Now that it has ceased to be the penal settlement, we may regard Siberia as the colonial empire of Russia. It is certainly regarded by the Russians in that aspect, and I will say this for them, that they are doing everything they possibly can to give the country every chance. The most careful and prudential arrangements are being carried on with regard to emigration, trade, public economy, and development.

There is an old proverb, "Scratch a Russian and you will find a Tartar." That is true, ethnologically as well as ethically. Directly you enter Russia, especially provincial Russia, you are struck by the fact that the people are pre-eminently oriental. You may notice it first in their clothes. A woman may have a blue kerchief on her head, be wearing an orange blouse, a pink apron, a scarlet skirt and green petticoat—all very bright, and yet being singularly harmonious, and in that as in other things distinctly oriental. The groups of children, clad as they are, look for all the world like clumps of old English flowers—masses of pink, and blue, and orange—so very different from the dull grey raiment of Lutheran Germany.

There is a striking Oriental note at Moscow in the fine Cathedral of St. Basil—a most extraordinary structure, absolutely opposed to everything European. Then, too, take the main colouring of the towns,

The towns of Russia present a most cheerful appearance, if you get anything of a panorama of them. The walls of the houses are uniformly white or buff, and the roofs either a clean light green or a light red. It is all colour, and bright colour at that. Yes, you are in the Orient, or very near it.

While on this social subject, I should like to point out that the Russian nobles, according to the western ideal, have in many cases ceased to exist. Many are absolutely landless: their possessions have passed into the hands of the rich manufacturing and industrial classes, as wealth always does in the course of time. Families are always going up just as they are always going down. Some of the old and exclusive aristocracy are beginning to move with the modern times; and, just as in the case of the English aristocracy, they are now going in ever increasing numbers into business.

The Russian Church—the Greek “Orthodox” branch of the Church Catholic—is omnipotent. The Russian reformers say that it is the Church that keeps the country backward in education, civil progress, and freedom. I think that a general statement like this might equally apply to all “churches” controlled by a priestly caste, whether they are what we call heathen or what we call Christian. There always has been, perhaps there always will be, a tendency to conserve rather than to destroy; but speaking for myself, as an unbiassed and, I hope, unprejudiced observer of moral influences, I do really think that up till to-day the lot of the great mass of Russian peasants has been so hopeless and so poor, with apparently so little chance of improvement, and he has been so absolutely uneducated and devoid of outlook, that I cannot help thinking that he has found both comfort and hope in his religion. There is no question about it—how far down below the skin it goes I am not in a position to say—that the peasants are most punctilious in observing religious duties, and that they have a simple faith which is hard to find in the more educated and better-endowed classes. I look upon the Russian Church as an element which has done much good to the poor and the miserable, and I hope that under wise guidance and with growing tolerance it will rise in future to the higher occasion, and promote in increasing degree the actualities of religion as well as the idealities of theology.

In the same spirit we may see the Russian Church also moving forward, and, in one sense, there is a point where in principle we might learn from them. Most of the pictures in the Russian Churches are very striking, impressive, and full of teaching. In St. Paul's Cathedral in London you can see many poor people going into that vast building to get a little rest, eat a few crumbs, and feel a bit warm: but what is there for them to see, what silent teacher is there before them all the while? There is art, and very fine art: I understand you get a great display of the most learned symbolism yet erected in an English Cathedral; but the symbolism is so recondite that not one in a thousand of the clergy even could explain it, and painted on so small a scale that not one in a thousand persons could ever see it! When the sun shines through the windows there appears a beautiful harmony of soft colour and devious line—a beautiful subtlety of art; but the poor wretches who creep in there in such numbers for rest know nothing of all this. What terrible waste! Buildings like St. Paul's, with such splendour of space,

lend themselves admirably to depicting, in the large language of pictorial allegory, such stories (for all times and all races) as the "Prodigal Son" or "The Good Samaritan."

Now, by way of contrast, we have in all the Russian churches beautiful pictures, often on an heroic scale, which depict such stories so plainly, that the most unlettered peasant can creep in out of the cold and the want and the misery and see exactly what they may mean to him, and find in them comfort and a sort of sign of brotherhood and a help to hope in the future. Whatever Russian reformers may say, I believe the Russian Church has had to this extent a most efficacious influence on the peasantry.

But I must pass on to this great railroad round which the wealth and power of Siberia are being rapidly evolved: and it will give you an idea of the length of this railroad if I say that if you start from, say, Havre, in Europe, and finish your journey at Vladivostock you would have travelled a distance of 7,500 miles by rail, of which nearly 5,000 miles were in Siberia. You will notice that the line does not run due east, but east by south—always to the great East and the Ocean, but always, too, enviously south.

The Siberian railroad is to-day a single thread; but that is the beginning. It will not be long before, here and there, it has become a network. Already branches are being designed which will equal in mileage the Great Trunk road itself. Always recollect when you look at the map that the potentialities of the railroad will probably surpass your imagination. Russia means business, and Russia does not relax.

Now let us make this great railroad journey. We must make it in haste to-night, and only a few glimpses of the country can we get. But such even as they are will be worth your having.

Every Saturday night, at 8-15, the Siberian express steams out of the great station at Moscow. It is perhaps the most comfortable train in the world. I have travelled by all the principal American and Continental trains, but have never found one quite to equal it in comfort for a prolonged journey. For example, you have not only excellent carriages, but there is a most commodious saloon, where you foregather and play cards or dominoes or merely talk; there is the observation car at the rear of the train; but these you have met before. But the bathrooms are newer, though you have heard of them; and most distinctly the gymnasium is an absolutely new feature. But, taken together, they serve to make the time you have to put in on this train pass not uncomfortably. And you want it, for the journey from Moscow to Irkutsk is practically unbroken, and takes you about nine days. You start on Saturday night from Moscow, and arrive at Irkutsk at 7-30 a.m. the following Monday week. About seventeen miles an hour, including stoppages at over 200 stations, is the average speed. The engineers talk boldly of thirty miles an hour, but the railway will have to be practically rebuilt before this can be accomplished. You can do the journey to Vladivostock in 21 days now, and now it is prophesied that this will soon be reduced to 16. As to the fares, they read like a fairy tale. But I will be brief, and tell you simply that you can travel a distance of 5,500 miles, first class, for £12, second class for £6, and third class for £2 15s.! Of course you pay extra for your food. The first-class fare includes three changes of bed linen en route—not at all Russian

that! The first class is luxurious, the second not bad, but the third, well, if you are fond of the zoological garden which the Russian moujik carries about with him, go third class. Russia is one of the most interesting countries on the face of the earth for some things; but I have found, in the best houses, in fine buildings, where you could not have thought it possible, such a pest of vermin, such a universal animation, as to be trying to a really active man. If such a state of things exists in really good houses, what can the peasants' houses be like, and what the third-class carriage?

I have said that emigration into Siberia has been carried on until recently largely on the involuntary plan, but the right sort of emigration has greatly increased during the last few years, and the government has acted in the most paternal way with regard to this. "Khodoks," or pioneers, from the villages precede their party, select land, and prepare roughly for their coming. Then they return to the villages and escort their friends and relatives forth, Government practically paying expenses and making liberal grants for their support during the first year of the new life.

Returning to the railroad itself, I must remind you that it is a pioneer line. It is even now being largely rebuilt. The road has not been properly ballasted, the rails are much too light (only 48 lbs. to the yard), and the sleepers are short and soft. It is pre-eminently a pioneer line, and was rushed forward with great speed. Indeed, its construction constitutes a record for speed, having—as to more than 4,000 miles of it—been started and completed in eight years. The Canadian Pacific previously held the record—rather over 3,000 miles in ten years. But already some £13,000,000 has been spent in reballasting the track and relaying the rails. The whole work of building, I may note, proceeded simultaneously; they started from the east at the same time as they started from the west. Work went on continuously year in and year out, and at the last moment there were only certain portions here and there to be fitted in to make the whole line at once and suddenly complete.

Some of the locomotives were built in Russia, some even in Siberia, some came from France, and some from America, but I do not think any came from England for the main trunk line, although I hear from the well-known English engineers, Messrs. Kerr, Stuart, and Company, that some British locomotives have been built for the branch lines. I am very glad of that: it is not the usual tale one has to tell of British enterprise in Siberia.

There is a curious point about the stations. They are all strictly graded according to their importance, and equipped accordingly. At the first-class stations you not only get food, but you get it hot and good, and waiting for you when you arrive. There is also a doctor or dresser in attendance to give you medicine if you are ill, or bandage you up if you have exchanged international amenities *en route*. At a second-class station the food is cooked, but, unfortunately, not often hot—or less hot—or even cold! At the third it is uncooked, and at the fourth and fifth class stations there is no food at all. But at all first-class stations there are complete arrangements for poor and sick emigrants, food is supplied gratis or at an insignificant figure, the sick and the children are well looked after in any case, and in no case are the helpless allowed to go hungry.

If you want another name for this railroad, you may call it the railroad of bridges. There are no fewer than thirty miles of bridges, the largest being some 980 miles in length, over the Yenesei, the next largest—840 yards—being over the Obi. These bridges are especially built to resist the vast masses of heaped-up ice which pour down the rivers when the great thaw comes. With what appears to be irresistible force day after day and week after week for at least three weeks, these masses will hurl themselves against the piers of the bridges; and it is at least to the credit of the engineers that the bridges, at any rate, have so far done their work well.

While speaking of the railway, I should like to draw your attention to one of its "curiosities." It is a great ice-breaker—the Baikal—one of the few things in Siberia built by Englishmen; it was built by the famous firm of Armstrongs. It possesses two screws behind for propulsion, and two screws in front in the bows of the ship for the advance through the ice. I am not very technical, but I may describe the process roughly by saying that these screws revolve with great rapidity, and draw the water from beneath the ice which is in front of the ship. The ice drops down with its own weight directly the water is removed, and the ship, with its sloping bow, slides up the ice and crushes it down. This ship will go through ice three or four feet in thickness at a speed of eight or nine knots an hour. The steamer acts as the link across Lake Baikal, while the line is being laid through the very difficult mountainous country south of the lake.

In all countries physical features determine to a large extent the distribution of the population and their industries. Let me give you a curious instance of this. In Western Siberia the Russian believes in the birch tree; he builds his house of it; he makes his fire of it; he uses it for his pails, baskets, sledges, and the like. And so, as you journey through Siberia, you will notice, again and again, and yet again, how often the hillsides, covered with spruces, or larches, or willows, remain in their primitive wildness, unattacked by man, while wherever the forests are of the birch, there you will see colonies of settlers busily at work in cultivating the land and using up, as if the supply would last for ever, their well-beloved birch tree.

The railway is developing Siberian trade so fast that it cannot cope with the work it has to do. Enormous mountains of stores and goods are piled at the chief stations awaiting transport. In 1895 there were 57,000 tons of goods taken over the then completed portions of the line; last year there were 657,000 tons, and a third as much again waiting in vain for transport. So with the passengers, for in four years they have increased from 100,000 to over 1,000,000. Towns have arisen in the wilderness, villages have become cities, and in one or two cases cities are like to become villages again. Tomsk is an instance.

Tomsk is in the centre of Siberia; it is a town of some 50,000 inhabitants, only one other city sharing with it this distinction. And yet I believe Tomsk is doomed to virtual extinction. I may say that the standard of morality in Russia is not remarkably high, and bribery and corruption are common enough in daily life; and I really do believe I am right in saying that it was on account of the smallness of the bribes, or the absence of them, that the engineers reported that owing to the bogs and marshes it would be impossible to take the railway to

Tomsk. At least that is the common belief in Siberia. Consequently that great trunk road runs past Tomsk at a distance of fifty miles! And Taiga, the junction for Tomsk, a hamlet of three huts five years ago, is already a city of 10,000 inhabitants.

I must not leave out, in these desultory remarks, some mention of the great mineral wealth of Siberia. As a gold, silver, copper, lead, and coal producing country, not to speak of precious stones, Siberia holds out potentialities almost beyond the avarice of man. Though the Russians have only slightly tapped, with the most primitive appliances, her supply of gold, yet Siberia easily stands fourth in the gold-producing countries of the world. In the Altai region, in the enormous basins of her great rivers, in the far east, and in the farther north-east, there are thousands of square miles of goldfields. In the Altai range alone there have been located nearly a thousand beds of silver, lead, and copper, of which not fifty are really being worked. From one end of the line to the other, at distances more or less slight, there stretch fields of coal, which are destined to play a tremendous part in the development of the country. Here and there, especially in the western region, the quality is poor: but there is enough left of good quality to serve Siberia for centuries to come.

As I am addressing a Manchester audience—deeply interested in the commerce of other countries—I should like to say a few words about the trade of Siberia. I may be brief, for the thing is so obvious. There is an enormous market for the British manufacturer in Siberia, a market which I cannot exaggerate. Mining machinery, agricultural implements, sawmill machinery, electric plant, locomotives, railway plant, manufactured goods of all kinds, woollen and cotton goods, are in great demand now, and will be in greater demand as the country develops. The preponderating portion of the trade is now held by the Germans and the Americans, and there is absolutely no reason why the English should not do just as well as they do. But we do not seem to be going about it in the right way. First of all we do not advertise sufficiently. I have taken up scores of Siberian newspapers, daily and weekly papers, and I have seen everywhere the advertisements of German and American houses, but never have I seen an English advertisement. There is a very successful commercial calendar—a sort of commercial Whitaker—which is in the hands of practically every man of business in Siberia; it lies on his desk, and he consults it throughout the year. In that calendar there are 400 pages of advertisements, 150 of which are occupied by German and American advertisements, well displayed and well set out, but not one page is occupied by an English advertisement! That looks as though we were asleep. Manchester thinks itself awake, but while Manchester is content to deal with German agents in Siberia, I shall beg to reserve my opinion on that point. Why, even at the eastern ports, where our maritime supremacy should at least count for something, Germans have 35 per cent of the trade, and we only 13 per cent. Are we going to trust to German agents who send the bulk of the orders they get back to the Fatherland—and I don't blame them—or are we going to learn and do a bit of trading for ourselves? I believe that the only thing I can find from the North of England in any Siberian home (crowded as it is with goods from Belgium, Germany, France, and

Bulgaria) is a pocket-handkerchief! And pocket-handkerchiefs go a long way, and last an unconscionably long time in Siberia. So we shall not get fat on them. Yet think of the trade only now developing. Those Semipalatinsk and Tartar provinces; think not only of Turkestan and the rich Altai districts, of Western Siberia, and Eastern Siberia, but also the trade of the Pacific ports, of Manchuria, of China with its 400,000,000, of Japan and its 40,000,000. All through here, by way of Siberia, lies an enormous market for British manufactured goods of every kind. Are you going to have it? Some of you think you have already got it. I tell you you have not got a quarter of it. I know that Manchester parable how you can go and buy in Belgium Belgian cotton goods, in Germany German cotton goods, and in China American cotton goods; but that all the time there is a man in Manchester here who is saying: "I know the firm in Manchester who made them all." All I can say is, be prudent, for the American and the German are just as "live men" as you are, and while you are *here*, they are already *there*.

There is yet another point about this trade aspect. As a rule we make our things too good; we make them as though they were going to the Paris Exhibition to win a gold medal. Now Siberia is being developed by men of limited capital. They do not want your absolutely first-class goods; they like them well enough, of course, but they have not got the money to pay for them. Therefore they want something that will do for the present—something at a second-class price. The Germans and the Americans know this, and they do not hesitate—they never did!—to make a second rate thing. But, then, they sell it at a second rate price.

Then, again, we send out catalogues, beautiful catalogues, printed and illustrated in the most handsome manner; but would any sane person believe it, they are printed in the English tongue—an unknown tongue! Now, if they had been printed in German they would, at least, have been understood. But why not in Russian, in the name of all that's common sense? Yet not contented with this, we print the weights and measures in our own, very own, antiquated system—an unknown, undecipherable system! And, finally, we affix the prices in our obsolete, barbarous pounds, shillings, and pence—an absolutely unknown and mysterious series of symbols to the public in Siberia who want to *buy*, BUY, BUY!

So, you see, here are some of the facts that help to strike one that we are missing things. We are doing a trade, of course, but we are not getting a tenth of what we ought to get. Russia scarcely competes with us; it sends leather, tallow, wine, and very inferior iron goods—that is all. France sends left-off fashionable attire, wines, and preserves; Belgium sends glass and iron ware; Japan sends wheat and rice; Corea cattle and greenstuffs; and China tea and silk. They do not concern us. But the Germans sell what we could and should sell them in the way of machinery, manufactured goods, and even cotton; while every agricultural implement in Siberia is American, and American are the works for electric light, sawmills, factories, and American are the innumerable steamers, tugs, and launches which begin to cover the 27,000 miles of waterway around which, as well as around the railroad track, the new Siberia is arising.

It is not for me to make suggestions to the practical audience I have before me; but I would like to close these disjointed references to the many pictures I have shown you of the new Siberia with these common observations: (1) That for expansion of commerce it is necessary to trade with the people of other countries; (2) that if you wish to trade with the people of another country you must understand what they really want to buy; (3) that if you would really understand what the people of another country would really like to buy it would be useful to live amongst them for a while; and (4) that English is not yet the universal language. And I might add that we in England really know nothing at present as to what technical education or commercial education really is.

I would ask you to forgive my emphasis in speaking of these matters, did I not know that there lies before us a deadly war. Not a mere Transvaal bother of a year or so; not a mere Seven Years War; no—not even a Hundred Years War. But a War which is to last for centuries—a war of life and death to nations and peoples; a war in which our existence will be again and again in deadly peril. And, I tell you, it is time to arm, for the war I speak of has already begun. It is the War of Trade; and shall we be, as ever, unprepared for it?



ICELAND AND THE ICELANDERS.

By MR. JOHN R. NEWBY.

[Addressed to the Society, in the Library, at various Meetings.]



The Wife of Dr. Björnsson, in her bridal attire.

IV.

When I started from Leith, on the 25th of September, 1896, one of my *compagnons de voyage* was a native of Iceland, Doctor Gudmundr Björnsson, M.D., and surgeon (*Distriktlæge* at *Reykjavik*, and one of the lecturers at the Latin School), who had for many months last past been travelling in Sweden for the purpose of making himself thoroughly acquainted with the cure for cutaneous diseases, and most particularly for the complaint of leprosy. The doctor spoke English, proved a most pleasant fellow-voyager, and gave me much valuable information anent his country-men. He was kind enough to introduce me to his wife, a sister of my guide. Daniel Danielsson—who spoke English

exceedingly well, and gave me a photograph of herself in her wedding-dress, and also one of her first-born son, who, she told me, did not at first recognise his father after his long absence.

October 4th.

Therm. (Fahr.).	Barom.	Wind.
Air, 41°. Sea, 49°.	29.2°.	E.

It was about 9 in the morning when we passed *Látravöst*, the most westerly point of the island, and at 10-30 we arrived again at *Patriksfjörd*. The name is not derived from the Irish Apostle, but from another Patrick; travellers in Iceland are continually reminded of the close relationship between the native tongue and the Anglo-Saxon. I use the latter term, notwithstanding the late Professor E. A. Freeman* states "Anglo-Saxon" makes people fancy that one language has been changed for another," but on the previous page he writes, "There is no part of Europe where the people could at once understand a book written in their own language eight hundred years ago." Iceland, though situate partly in the Eastern hemisphere (or "Old World") and partly in the Western (or "New World"), has always been treated by cosmographers, geographers, and constructors of maps as forming a portion of Europe, and not a part of America. When visiting the library at *Reykjavik* I was told that not only could all educated adults read manuscripts written so long ago as the Norman Conquest, but that the elder scholars in the Latin School could read and comprehend these writings with as much ease as they read the native newspaper of to-day.

The incursions which the first colonisers of Iceland made upon our shores during the two centuries immediately preceding the Norman Conquest left their impression not only on our customs, but on our language; in the Northern dialects how many provincialisms can be traced to a Scandinavian origin. For instance, take these ten examples of local words familiar to all of you, and in every-day use in Lancashire: after each word I have put in brackets the Icelandic (or Old Norse) equivalent—Ling (*lyng*), beck (*bekkr*), to rive (*rífa*), fell (*fjall*), gaumless (*gaumur*—heed), to flit (*flýttja*), to lake—or play (*leika*), muck (*myki*), to speer—or ask (*sprýja*), to rive—or tear in pieces (*rífa*), and lastly a kittling (*kettlingr*).

In districts where Danes and Norwegians most settled we find place names of Scandinavian descent; *exempli gratia*, Whitby means white village (*byr* is Icelandic for town); the Danish equivalent for "fern" is *bregne*, hence our word "bracken"; *thveit* means a detached piece of land, such is the derivation of Brackenthwaite (*Cumb.*); the Old Norse for a "fortress" is *virki*, from which is derived Southwark. The Iceland language is closely akin to the parent of our own tongue, the "*Anglo-Saxon*."

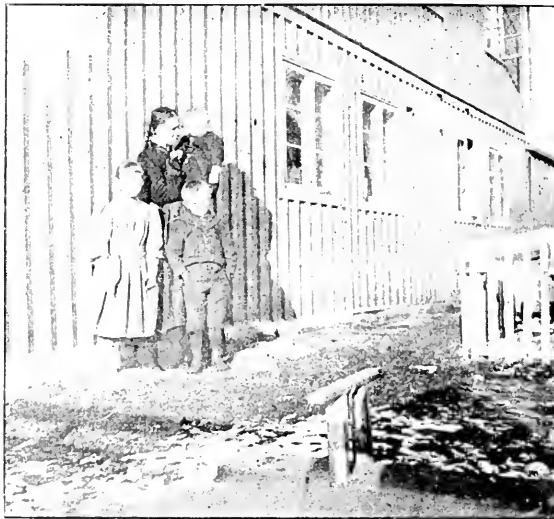
It was a warm, bright, sunny day when we visited *Patriksfjörd*, and I went on shore with some Icelanders who could speak English. We visited a fish-washing place here; they are much alike at all the *Handelsteds*; the work is nearly all done by women.

* Vide "Old History for Children." Macmillan and Co., London, 1869.

October 5th, 1893.

Therm. (Fahr.).	Barom.	Wind.
Air, 36°. Water, 40°.	29.3°.	E.

It had got colder now, as the wind was blowing from the snow-covered land; a great deal of snow had fallen since we were in this part last month. Opinions may—and do—differ concerning the Gulf Stream, but they cannot regarding the cold drift (over 50 miles in breadth and many hundred feet in depth) that runs between Greenland and Iceland. So it is that the north-west fjords are more subject to floes and bergs than the *Breidifjörð* (Broadfirth), which again is oftener ice-bound than the *Faxafjörð* (Manefirth.) Formerly the sea-ice came with the north-east gales in January; at present it usually arrives about April, or even later.



Mrs. Skúli Thoroddsen (of Isafjörð) and her Children.

We called at *Arnarfjörð*, and thereabouts, in 1893, I made the acquaintance of a fellow-passenger named Skúli Thoroddsen, whom the captain told me was one of the leaders, in the *Athling* (Parliament) of the Home Rule Party; for, not to be outdone by any other islands, there is a "Home Rule Party" in Iceland. Dressed as he was, I had at first avoided him, but in Iceland dress tells nothing. Herr Thoroddsen, who is a brother of Dr. Thorvaldur Thoroddsen,* the Icelandic explorer, gave me much valuable information, and read through and corrected my book on Iceland ("Foreign Countries and British Colonies" series),† and the captain said he was much amused at hearing me "draw out" the politician. Here is a photograph I took of his wife and their children, in front of his house, on the 8th of October, 1893.

* Author of "Explorations in Iceland during the years 1881-98." "The Royal Geographical Journal," Vol. XIII., Nos. 2 and 3.

† By E. C. Otte. Published by Sampson Low & Co., 1881.

I have since heard much of him; he, like his brother Dr. Thoroddsen, is a very clever man. *Isafjörð* lies on the south side of *Isafjardardjup*, in the hand-like shaped north-west peninsula of Iceland. (See Map, Vol. XVI., page 116 of the *Journal*.) I talked much to Herr Thoroddsen about "runes," alphabetic characters (popularly ascribed in Scandinavia to the God Odin), cut or scratched on stone monuments, weapons, ornaments, and implements; these belonged to the written language of the ancient Norsemen or Scandinavians, and are in a wider sense applied to the letters of the Northern nations in general. The word "rune" (Icel., *rún*) means a mystery or secret, and this method of writing appears to have been the only one known in Scandinavia until the Roman alphabet came in with Christianity in the tenth century. The signification of the word seems to allude to the fact that originally only a few were acquainted with the use of these marks, characters, or letters, sixteen in number. The custom of the Icelanders of having scalds (Icel., *skáld*) or bards to recite in poetry and prose the deeds of heroes at their festivals must have done much to preserve the language unaltered.

"*Runes* were upon his tongue,
As on the warrior's sword."—*Longfellow*.

Most of you probably know the mound of Maeshowe, half way between Stromness and Kirkwall in the Orkneys; it is the largest sepulchral tumulus in the United Kingdom. The walls of the interior chambers and buttresses, besides being inscribed with figures of winged dragons and animals, are also decorated with runic inscriptions, consisting of long straight strokes distinguished from one another by the number and position of shorter ones attached to them like the arms of a semaphore in various positions. In Baring-Gould's book before-named are two illustrations of tombstones inscribed with runic characters; another stone is shown (page 59) in "A Pilgrimage to the Saga-steads of Iceland," to which work I have before referred.

October 6th, 1893.

Therm. (Fahr.).	Barom.	Wind.
Air, 37°. Sea, 45°.	30°.	N.-E.

It snowed and sleeted most of to-day while we were lying off the fishing station of *Thingeyri* in *Dryafjörð*, and I did not leave the boat; in fact, hardly left the cabin, so disagreeable was the deck, covered with snow; no sun, only a dull leaden sky, and now I could imagine what a desolate place this island must be in bad weather. It was here that Herr Gram joined the boat.

October 7th. On getting to sea again we found the weather fine, but cold.

Therm. (Fahr.).	Barom.	Wind.
Air, 34°. Water, 42°.	30°.	S.-E.

When we were at sea in a morning I always got one of the sailors to haul me up a bucket of water, so that I might take the temperature of

the ocean. We arrived at *Onundarfjörð* this morning in bright sunshine. Lieutenant Armstrup came on shore with me, and we paid a visit to the whale *faktori*, where the small whale steamers lay, drawn up out of the water for the winter season.*

The mountains on either side of the bay of *Onundarfjörð* form one of the most romantic and irregular scenes that I met with during my trips; they are every now and then transversed by deep gullies, which stand out isolated and pyramidal in form, and their strata are piled one above another in the most perfect order. This bay is a very good sample of the north-western peninsula and its mountains. The name of *Vestfjörðar* (Western Friths) is very appropriately given to this peninsula of the island, for it consists entirely of bays separated from each other by ridges of bold projecting mountains, and resembles, as I have mentioned, nothing more exactly than the shape of the human hand. It is truly "almost an island," for the neck, or isthmus, connecting it with the rest of Iceland is—according to Dr. Th. Thoroddsen—only four and a half miles in width and 750 feet in height.



Ear-bones of (i.) Nord Kapper Whale, (ii.) "Right Whale" (*Balaena Mysticetus*).

The whale *faktori* at *Flateyry*, on the southern shore of *Onundarfjörð*, would have been closed but that two Swedes had assaulted the manager (a Norwegian), by hitting him on the back of the head with a beer bottle. The Norse and Swedes have been for centuries past and still are always at enmity. I thought at first it was some trouble about trade disputes, but found on inquiry it was personal; so the *faktori* had not been closed as usual at the end of September, and the people were waiting for the arrival of our boat, with a *sysselmänn* (sheriff), on board. He went on shore and committed two men for trial. The prisoners were taken off in a Norwegian steamer to *Isafjörð*.

There are many sorts of so-called whales in the various oceans; the two best known around Iceland are the Greenland whale and the *Fintval* (Icel.) (*Anglice*, fin whale). The first is a whale proper—a

* See view of this *Handelsted*, Vol. XVI., p. 140 of the "Journal of the Manchester Geographical Society."

mammal, and not a fish; naturalists call it *Balæna Mysticetus*, or the "right whale"; its home is in the icy Polar Sea.

Regarding the order of marine mammals known as *Cetacea* I have no personal technical knowledge; and, in my remarks, have to rely entirely upon what I have been told by Icelanders, and others, and upon what I learn from books. Amongst my exhibits on the library table are the ear-bones of two whales—these bones are shown in the above picture, made from a photograph, which Mr. J. D. Wilde, M.A. (one of our Honorary Secretaries) has kindly taken. I purchased these interesting specimens when I went over the *faktori* at *Flateyri*, in October, 1893. The sub-manager fetched them out of a cupboard in his office, and informed me that the late owners of these ear-bones had been captured and slaughtered during the previous summer; and said that it was customary to preserve these hard calcified tissues of the skeleton of the *Hvalbr* (*Anglice*, whale)—not that he used the precise equivalents for these English words—as curios for travellers.

Whales, speaking generically, are strong, not to say *very* strong; and my exhibits, when I imported them into Great Britain, did not belie the statement of the seller that they were *fresh* captures; had you seen them in the "fall" of 1893 you would have said they were decidedly odoriferous, and—in that sense—retained the quality of their original owners! I was informed that the ear-bone (ii. in the above picture) is that of a Right whale; as a matter of fact it is only one-half the size of the other bone shown in the picture; its weight is 17oz. avoirdupois, it is five and a half inches long, averages two and three quarter inches in breadth, and its greatest height—so to say—is three inches. This is—using the technical term of anatomists—the *tympanum* (or ear-drum) of the animal. In 1893 I saw a few Greenland (or Right) whales, but there are more to be seen, at sea, in the late spring than in the autumn. Looking at the lantern slide (showing a Right whale at his gambols) on the screen, you will observe that the size of the head is enormous as compared with the remainder of the body.

This leviathan feeds on minute crustaceans—a sort of very wee shrimps—and pteropods—or molluscs—which swarm in the seas it frequents; its *immense* mouth enables it to take in at one time a sufficient amount, for food purposes, of water filled with these little organisms, and the length and delicate structure of the *baleen*—erroneously termed in English "whalebone"—provide an efficient strainer or sieve (Dan., *seef*), by which the water can be drained off. I have seen stacks of baleen outside the whale factories; it is just as long as the aperture between the upper and lower jaws of the whale when its mouth is *shut*; a space exists between the baleen when the mouth is *open*; the long, slender, brush-like ends of this baleen fold back when the mouth is *closed*, the front ones passing below in a channel—so to term it—lying between the tongue and the lower jaw. When the whale opens his mouth the elasticity of these filaments causes them to straighten out like a bow unbent, so that however much his jaws are separated the strainer remains in perfect action, filling the *whole* of the interior of his mouth. To prevent the long, slender, flexible ends of the baleen being carried *outwards* by the rush of water *from* the mouth, when its cavity is diminished by the closure of the jaws and raising of

the tongue, the Creator so arranged the lower lip of this the largest of known existing mammals, that it rises stiffly above the jaw-bone.

The average full-grown Greenland Right whale yields about 95 *tons* of oil and 15*cuts*. of baleen, the latter consisting of some 590 slips, or strings, the longest measuring 10 feet 6 inches. This baleen is mostly used for the corsets (*Anglier*, stays) of "fair women," and for this economic application is boiled for twelve hours, until the substance is quite soft, in which state it is cut into strips as may be required. The baleen from a single whale is worth from £150 to £200; the tail is nearly 20 feet broad! This mammal has neither scales nor hair, but beneath its thick, shining skin is an immense coating of "blubber" or fat, that keeps the body warm; the largest Right whales yield as much as 120 *tons* of oil a piece.

The photograph on the left-hand side of the picture on page 50 *ante* is one of the *tympanum* and petrous bones of the *Nord Kapper* (or North Cape whale); I learnt little about this animal, but was told it is a fish, and not like the "right whale" a mammal; it has teeth, and is sought after by the whalers for its oil. The Icelanders and Danish merchants to whom I showed this exhibit assured me they had never seen a better specimen: it weighs 3lbs. 15oz. (avoirdupois). For further particulars as to whales and the method of capturing them I refer you to Dr. Thomson's letter on Iceland.*

After a rough passage from *Onundarfjörð* we again reached *Isafjörð* (the third largest of the towns of Iceland) about 6 p.m.; the pool in which we anchored on our outward voyage on the 26th of September, 1893, was now covered with a thin coating of ice.

Sunday, October 8th, 1893.

Therm. (Fahr.).	Barom.	Wind.
Air, 29°. Water, 30°.	30°.	N.-E.

Last night was the coldest we had experienced, and the pool was this morning more thickly covered with ice, but it was not sufficiently thick to prevent the cargo-boats reaching the "Thyra." It was here that I visited Stuli Thoroddsen at his home and photographed his wife and family. She showed me much *old* gold jewellery—of which she was rightly proud: one ornament was a locket, with an engraving on it of the Crucifixion. She was kind enough to put on some of the adornments to show how they were worn. I greatly admired a filigree-worked silver sugar-box, and an elegantly-shaped coffee-pot. It was a lovely bright October day, and their sitting-room—lighted up by the numerous plants in flower—looked very bright and cosy. They had in 1893 four children: the eldest named "Una," and to her, on my return to England, I sent a print of the above photograph. The "Thyra" could only get out of the pool where she lay at a certain state of the tide, and we just missed by a few minutes getting out this evening, much to every one's annoyance. It was a hard frost to-night, but was bright and pleasant enough on

* "Letters of a Traveller on Various Countries," by Alexander Thomson, M.D. James Wallis, London. 1793.

October 9th.

Therm. (Fahr.).	Barom.	Wind.
Air, 30°. Water, 43°.	30°.	S.-W.

The wind was blowing over the snow mountains and felt very cold. The captain told me the full distance of the run of his vessel from Copenhagen and home again (when sailing round the north coast of Iceland) is 5,000 miles. The distance from Granton to Copenhagen is 650 miles, so that the Danish Steam Company carried me 3,700 miles, and provided me with a good sleeping berth, for £8. I had a splendid view of *Cap Nord*. The wind being off shore we passed near the coast,



Icelandic Lady, in every-day attire.

along the *Strandaflooi*, or, as it is often called, *Húnaflói* (*Anglice*, "Bear-cub Flood," or "Bay of the Young Bear"): and, as we were going through the water. I took a picture of three Icelandic women, who were parading the deck to keep themselves warm.

October 10th.

Therm. (Fahr.).	Barom.	Wind.
Air, 38°. Water, 42°.	30.2°.	E.

As our vessel was carrying winter provisions for the islanders dwelling on the west coast, it was fortunate for the few folks that live at *Skagaströnd* that the wind was off shore, as the coast is so rocky,

and there are so many reefs, that it is very dangerous to call there when the wind is in the north-west. A farmer brought on board a white falcon that he had shot: he wanted me to buy it, but as he wanted six kroner for it I declined; the prestr from *Siglufjörd* purchased it. We next rounded Laxa Head, and turned into *Skagafjörd*, visiting *Hosfos*, and arriving at *Saudárkrókr* late in the evening.

October 11th.

Therm. (Fahr.).		Barom.	Wind.
Air, 42°.	Water, 41°.	30.4°.	N.-E.

The morning was fine, but the wind was very strong, and the water so rough that no boats could put off with cargo: and we lay at the station all day waiting for the wind to lower and the sea to abate, but there was no improvement in the weather, and night came without our having done anything. This was the more annoying, as we were due at *Saudárkrókr* on the 5th of October, and the captain had word sent him from the shore that there were a great many barrels of salt mutton for the ship.

October 12th.

Therm. (Fahr.).		Barom.	Wind.
Air, 40°.	Water, 35°.	30°.	E.

As the weather still continued too rough to allow any cargo to be put on board, the captain decided to go eastward to the next station (*Siglufjörd*). A Danish merchant, Herr Popp, went with us. He told me as regards the fishing trade that the sailors (or, as they are termed, "farmers") who catch the fish sell to the merchants. The price to be paid is fixed early in each year: 40 kroner (*i.e.*, 44s. 6d.) per *skipfund* (320lbs. Danish) was the charge in 1893. This *skipfund* (= 160 kilos.) is an Icelandic standard, or mode of measuring by weight. The Danes used to have a measure called a skippon, but no longer use it; 101½ Danish pounds are equal to 112 English pounds (avoirdupois). If a great many fish are caught prices, of course, fall, and in that event the merchant will probably lose money. The women and children are engaged all day in laying out the fish on the stones to dry; in the late summer hands are short, as the townspeople go inland to the farms to gather the hay. It was 8 p.m. when we arrived at *Siglufjörd*; we landed the prestr and his blue kitten and falcon.

October 14th, 1893.

Therm. (Fahr.).		Barom.	Wind.
Air, 43°.	Water, 40°.	30°.	S.-E.

We discharged cargo and took some barrels of mutton on board, and also the crew of the Grimsby boat that had been wrecked in the great storm that occurred on the 18th of the previous September;

their boat was beyond repairing. The doctor of the place came on board in a very intoxicated state. There are, I learnt, nine Danish merchant vessels that are commanded for a time by lieutenants or officers in the navy; and so these officers learn navigation. The Danish mail boat that does the round of Iceland is always commanded by a naval officer. At 1 p.m. we set off *back again* to *Sauðárkrókr*, which we reached about 7 o'clock in the evening. The views of the snow-clad cliffs *en route* were very grand, as we were a very short distance off the north coast; I should have enjoyed them more had we not been so far behind our time. The wind had a good deal abated, and some cargo was got on board this evening.

October 14th.

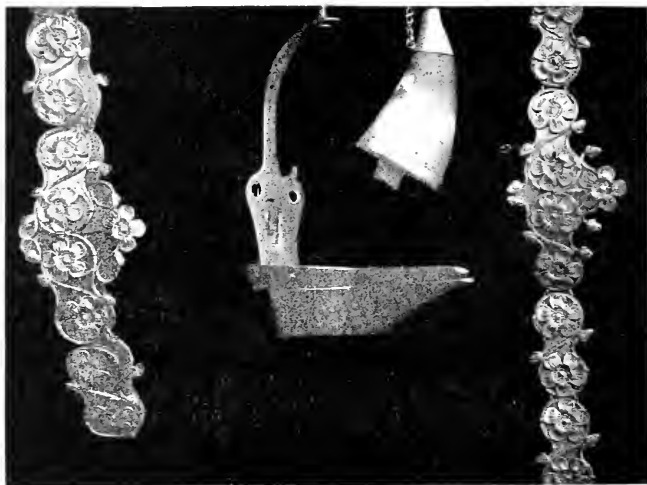
Therm. (Fahr.).		Barom.	Wind.
Air, 32°.	Water, 39°.	29·8°.	S.-W.

At 8-30 a.m. there was a thick hoar frost on the deck; the sun when it broke through the clouds was very powerful. The mates looked after the loading of the barrels of mutton and sheepskins. Fancy the islanders exporting their beautiful wool and importing "shoddy," or, as we term it, "wadmal," (Icel., "*vadmál*"), for wearing apparel. Homespun cloth is also termed "*vadmál*" in Iceland. I had a long walk up into the hills with Captain Garde, who proved a most pleasant and intelligent companion. We passed over a wooden bridge, below which was the torrent iced over, but we could hear the water rushing along beneath towards the sea. Following the stream, we saw numerous cascades, and amused ourselves (as there were no folks about) like schoolboys for a bit by hurling large stones down the steep sides of the stream on to the ice below. After spending two or three hours amongst the snow—and where it had drifted it was several feet in depth—we returned to the station and called on Herr Popp, who regaled us with some "sherry wine." Captain Garde asked me when we got outside if I thought it was sherry, as it made him go *so hot all over*. I told him it had the same effect on me, and I thought the Spanish wine had been fortified with spirit. There was an ivy plant in the sitting room, trained against the wall, and very pretty it looked. The merchant seemed pleased when I recognised some views of Copenhagen. A blue fox skin made a good rug. Apropos of these creatures, Henderson (who is well known as one of the most pious and truthful of men, and whose book on Iceland, before mentioned, is one of the best known of the numerous works on that island, written at the very beginning of the nineteenth century, after he had returned from distributing Bibles all over the country, writes: * "In the vicinity of the North Cape, where the precipices are almost entirely covered with various species of sea-fowl, the blue foxes proceed on their predatory expeditions in company, and previous to the commencement of their operations, they hold a mock fight upon the rocks, in order to determine their relative strength. When

* "Journal of a residence in Iceland," by Ebenezer Henderson, Ph.D. *Second Edition*, Edinburgh, 1819.

this has been fairly ascertained, they advance to the brink of the precipice, and taking each other by the tail, the youngest descends first, while the strongest, forming the last in the row, suspends the whole number till the foremost has reached their prey. A signal is then given, on which the foremost fox pulls with all his might, and the rest assist him as well as they can with their feet against the rocks. In this way they proceed from rock to rock, until they have provided themselves with a sufficient supply." Had Ebenezer Henderson, Ph.D., lived at the end, instead of the beginning of the nineteenth century, it may be assumed he would have been an angler or a golf player!

Herr Popp was unable to speak a word of English, and I had forgotten the little Danish I knew, so the captain had to act as interpreter. I intimated that I wanted to acquire some old jewellery or ornaments so our host sent for a tradesman: but *he* had very little



Icelandic Metal Waist-belt and Tiara, Snuff-horn, and Copper Lamp.

that was *old*, and what was *old* had been made to look new. Then a lady dressed in black came into the room: after I had shaken hands with her she produced some brooches and articles of female attire; for some time I could not make out if they could be bought. Then another lady came and produced some more articles of female adornment, and at last I made out they were willing to sell, so I bought several of the ornaments, and they are now in my Icelandic cabinet. In the next picture you see two of my purchases—a belt and a tiara. The face of the tradesman, who remained in the room all the time, but from whom I bought *nothing*, as he wanted too much, was worth studying. After we had left the house, I inquired from the captain if the two ladies in black were sisters of Herr Popp. "Oh, no," he said; "those are his servants." They came to the door, shook hands with us, and saw us off.

Herr Popp showed me an old Bible, printed at *Hólar*—which used to be the cathedral town of Iceland—in 1601: this was a copy of the second of the Bibles printed there. I saw a copy—as I have before stated—of the first (printed about 1584) in the Museum at *Reykjavik*. Lying on the shore was a quaint and very old pulpit. I heard here that a large quantity of the spirits consumed by the dwellers on the coast is imported by foreign fishermen—mostly French—who barter it with the natives for their fish.

This reminds me of the "truck (Old English, *trukken*; French, *troquer*; akin to Spanish and Portuguese, *trocar*) system" that prevails in the island, a mode of doing business that not only interferes with its commercial prosperity, but, from a social point of view, is very demoralizing. Trade is nearly wholly in the hands of the Danes, and is carried on by barter (the practice of paying wages in goods); consequently there is very little ready money in Iceland. In the winter the natives go to the merchant's store for their food and necessities, and an account of all that they buy is entered on the merchant's books; in the summer the women work at fish drying, and are credited so much for labour, and the men bring in the fish to the stores. The great majority of the Icelanders, as a result, stand on the debtor side of the shop books: the Icelanders told me this was owing to the fact that the Danes are so exorbitant in their charges. The Danes say as long as the natives can get enough to exist on they are too lazy to work either to pay their debts or save. The native generally deals at *one* store only, so that practically there is little or no competition amongst the merchants. It is singular to see with what curiosity some Icelanders look at coins, so seldom do they handle any.

October 15th, 1893.

Therm. (Fahr.).		Barom.	Wind.
Air, 30°.	Water, 42°.	29°.	S.-E.

The wind had fortunately kept in the south-west all yesterday, so most of the cargo had been got on board. I watched the eider-ducks (Icel., *ædr*; akin to Danish *edrefugl*) diving this morning in the inlet of the sea; the average time they remained below the surface when after food was 45 seconds. One *Stefánson* (an ex-member of the *Althing*) sat next to me at meals to-day. In appearance like a cow-herd, he had been one of the richest men in Iceland; he mixed himself up with politics and law—forgetting the wise precepts of Luther—and then had nothing left. Started this afternoon direct for *Akureyri*.

October 16th.

Therm. (Fahr.).		Barom.	Wind.
Air, 36°.	Water, 34°.	29°.	W.

Due in Granton to-day, we reached *Akureyri* (the northern capital of the island) at 6 o'clock in the morning. I was glad to get a hot bath at the hospital. After breakfast I called on *Sira Matthias*; but he was out, so I chatted with his eldest daughter (one of my fellow-

travellers on the outward journey from Leith). She married an Icelander in the summer of 1900, my friend *Kristján* tells me. The very small dwelling with seven daughters in it and three sons seemed very full, and the prestr told me that "the one more little Icelander (to whom I made reference on page 139, Vol. XVI.) had not yet arrived. Not satisfied with this, a niece of the Sira had come with us on the steamship "*Thyra*," to stay with them for the winter. The prestr welcomed me, and I had some coffee and cakes with them, and he presented me with a copy of his translation of "*Hamlet*" into Icelandic.

October 17. The prestr and a contingent of his family came on board at my invitation to see me off, and to bring me some female articles of dress and adornments, which I had, when on the outward journey, asked Nora, one of the daughters, to procure for me.

Therm. (Fahr.).	Barom.	Wind.
Air, 30°. Water, 32°.	29.7°.	S.-W.

The weather, which had been so fine for some weeks, now became showery. We left *Akureyri* at 7.45 p.m.

October 18th.

Therm. (Fahr.).	Barom.	Wind.
Air, 30°. Water, 31°.	29.6°.	N.-E.

I went on board at *Husavik* (the birthplace of my friend *Kristján Jónasaron*), where we arrived this morning, with a young Danish engineer, who acted as my interpreter. In a small public-house here, which Captain Garde subsequently told me was a very bad house, I picked up—after bargaining—some curiosities, and I got together a characteristic gathering of natives. I went to look at an extinct reek on the headland: there was snow about down to the sea level. The station consists of several wooden houses. Fish was drying everywhere, or rotting. I had now got accustomed to the smells. There used to be a sulphur factory at *Husavik*, but it did not pay. The houses are on a cliff 100 feet above the sea, and goods are hauled up from the shore by means of a crane. The harbour is exposed to the north and north-west, and (like all the ports on the north coast of the island) is full of Greenland ice in the winter months. There were a great many sandpipers and other birds about on the beach. The weather-worn cliffs, looking west, are very picturesque. We sailed this afternoon, and, soon after starting, passed the *Luna* Islands, through one of which (as the captain pointed out to me) is an immense hole: through this is to be seen another island beyond the group, said to be magnetic.

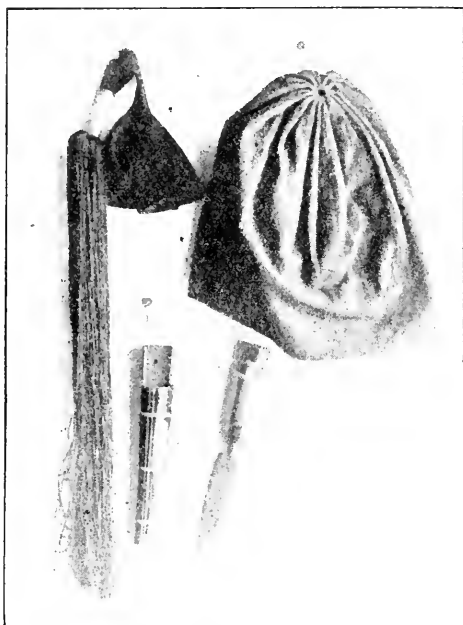
It is a remarkable fact that the ordinary compass (*i.e.*, the instrument for determining directions upon the earth's surface by means of a magnetised bar, or needle, turning upon a pivot, and pointing in a northerly direction) is *most unreliable* on the north coast of Iceland.

A doctor came on board at *Husavik en route* for an eastern station; he could speak English. In Iceland medical men are paid a salary of

1,500 kroner (about £83) a year by Government. For consultations or prescriptions they may only charge patients 25 ore (about 4d.). They need only be at college four years to qualify. One or two of the medical men practising in the island have been at Copenhagen to study. We passed within the Arctic Circle to-day, and had cakes and crackers and a merry-making that reminded me of a Christmas gathering in England, every one entering into the fun.

October 19th.

Therm. (Fahr.).	Barom.	Wind.
Air, 30°. Water, 31°.	29°.	W.



Icelandic Húfa (see pp. 131 and 132), and Farøese Cap and Whaling Knife (see pp. 122 and 126, Vol. XVI.).

Arrived at *Vopnafjörð* early this morning; went on shore to call on Herr Bache, whom we had left here when we were going out, and had some coffee with him. The rocks in the bay are grouped prettily, but the sky was too overcast to get any photographs. This settlement was very like the others. A good many Farøese, of both sexes, joined the boat here; all the men carry a knife in a case, suspended at the waist; I brought one back. It is shown in the above picture; the case is made of black wood, and the designs on it are of brass inlaid.

Into the belt of the *Farøe* man is always stuck the sheath of his whale-knife: the natives may not go to sea without their

knife; if they do so they are fined 1 *kroner*. The Faröese—both men and women—are better-looking and seem happier than the Icelanders. On the rocks in this fjord the eider-ducks build; posts are set up, to which strings and papers are attached to frighten away the Skuas (*Megalestris Skua*), and the many other enemies of the ducks, during the breeding season. We did not stay long here; we kept not far from the coast, and got good views of the cliffs and numerous sea fjords. Approaching *Seydisfjörd* a gun was fired, and the effect of the re-echoing sounds amongst the mountains was very grand. We got to our anchorage ground on the evening of the 19th of October, 1893; it was the 17th of the previous month when we had left it. At 6-45 p.m. the anchor was lowered; from some cause the chain broke, part of it flying back and hitting "George," the sailor who generally rowed me ashore. It is a wonder he was not killed; he was severely hurt. They dropped the spare anchor. I noticed the Danish sailors frequently wear earrings; not so the seafaring men of Iceland.

October 20th.

Therm. (Fahr.).	Barom.	Wind.
Air, 33°. Water, 32°.	29'4°.	N.-W.

During the early morning it was misty in the fjord, and fine rain was falling; later on the sun shone out, and the day proved one of the most beautiful we had, and I was able to obtain some good photographs of the views around the *handelsted*, named *Dvergasteinn*. Although the cargo was on board, the whole day was spent in dragging for the anchor! A sea spy-glass was brought. I had not seen one previously; it is a wooden box, or tunnel, about 4 feet in length, and large enough to admit the face. At one end is a piece of plain glass; this end is put in the water sufficiently far to be below the moving surface, and then objects at a great depth may be distinguished. They could not see the anchor, nor could they come across it with the drags. I was now getting impatient, and I wanted to be off to England, so it seemed to me a wasting of time.

October 21st.

Therm. (Fahr.).	Barom.	Wind.
Air, 35°. Water, 32°.	29'7°.	S.-E.

We reached *Eskifjörd* early to-day, and, curious to say, a second anchor came to grief and fell into the fjord. The captain and the sailors began to think there was a Jonah on board. We spent all day off the station, but the captain would not give any passengers leave to go ashore, as he said he might start at any minute. We did not get off till 4-45 p.m. A more angry sunset and sky than we left behind us I never saw. Before reaching the sea the moon rose; it was nearly full: I had not seen it during the last month. The snow-clad hills looked very grand in the evening light. I noticed a very large meteor darting across the sky. It was a very rough stormy night.

October 22nd.

Therm. (Fahr.).	Barom.	Wind.
34°0'.	29°2'.	S.-W.

It was blowing a gale all day, and I felt much pity for the ponies we had on deck: it was only with the greatest exertion that they could stand, and the sea was continually breaking over them.

October 23rd, 1893.

Therm. (Fahr.).	Barom.	Wind.
Air, 36°4'.	29°8'.	W.



Farøe Sisters.

We reached the *Farøes* early this morning; the Captain had me called, so that I might examine the curiously-shaped needle rocks and cliffs. Winding amongst the islands, we made our way in the steamship *Thyra*: she had come direct from *Reykjavik* along the south coast,—on my return journey—I purchased (amongst other curios) a hand-carved wooden picture frame, the work of Absolon Johaussen, of *Klaksvig*: it contained a portrait (taken in *Thorshavn*) of two young women of *Farøes*, of which I here give a copy.

At *Klaksvig* we found the steamship *Laura* (the sister boat of the *Thyra*); she had come direct from *Reykjavik* along the south-west.

having left on the 20th of October. It was curious watching the Faröese fishermen at their meals; they ate the bones, as well as the flesh, of the flat fish. All are very fond of sugar; I noticed a large lump was passed round, and at this each one had a gnaw (Icel., *gnaga*; Dan., *nage*). After leaving *Klaksvig* we made our way to *Thorshavn*, the capital of the islands. Here the weather was—as is generally the case—damp and misty, and there were several heavy showers before we set off for England.

No sooner had we got clear of the islands than we encountered a heavy gale from the south-west. We saw two of the new lighthouses that were opened in the autumn of 1893. The account given by Commander Forbes of these islands, and of Iceland, is graphic; and the illustrations are good.* There is a copy of this work in the Manchester Reference Library, which also contains a copy of a translation of the interesting work of Pajkull (a Swede)†; the pictures in this account are very true and interesting.

October 24th.

Therm. (Fahr.).	Barom.	Wind.
Air, 31°.	29°.	S.W.

The gale continued all day: *en route* we only saw one schooner. The *Thyra* was so heavily laden that the Captain was afraid to force her through the water, and our progress was slow. It was sad to see how the ponies suffered, owing to the quantity of water that we shipped.

October 25th.

Therm. (Fahr.).	Barom.	Wind.
Air, 33°.	29°.	S.W.

The sea was quieter to-night, and the air felt less cold; we lost the ship's log during the night, and one of the ponies died!

October 26th, 1893.

Therm. (Fahr.).	Barom.	Wind.
Air, 33°.	29.4°.	N.W.

One of the ponies had foaled last night; mother and foal were both dead. We reached Granton Pier at 1-30 p.m., after an absence of forty-five days from Great Britain. In 1896 I left Leith at 3-15 p.m. on the 26th of September, and arrived back again at that port at 9 p.m. on the 30th of October following.

* "Iceland: Its Volcanoes, Geysers, and Glaciers," by Charles S. Forbes, Com.R.N. John Murray, London, 1860.

† "A Summer in Iceland," by C. W. Pajkull. Translated by The Rev. M. R. Barnard, M.A. Published by Chapman & Hall, London, 1868.

The Icelanders have very good grounds for complaining of the trespassing of English, French, and foreign fishermen within the limits allowed by law; it is not only that these folk poach, and carry away the food of the natives, but with their trawls (O. E., *troller*) they disturb the fishing beds, and so interfere with the native industry. As a health resort Iceland is year by year becoming better known, and its bracing, crisp air is the delight of all visitors; since my first visit an excellent road for vehicles has been constructed from the capital to *Thingvallavatn*, and a continuation of this high road is now being made to the *geysirs*, and it is expected that by Midsummer, 1901, the whole road will be open for traffic. An hotel has recently been built near *Thingvalla Church*, and is, I hear, a comfortable house. The rising generation in Iceland is taking so much active interest in their country's welfare that further progress seems assured.

"FLOREAT ULTIMA THULE"

is the concluding wish of



The Writer.

THE PARIS EXHIBITION OF 1900.

By MR. C. H. BELLAMY, F.R.G.S.

[Read to the Society in the Library Tuesday, Feb. 26th, 1901, at 7-30 p.m.]

IT is extremely difficult to give any account of the Paris Exhibition which will be at all worthy of it, and at the same time sufficiently compact and succinct as to be worth the ordinary reader's time to wade through it. In mere space covered, this Exhibition so far out-distanced all European forerunners, that only to name the principal sights would of itself be wearisome enough; but if to this be added one's impressions and opinions, the result would be an article of such unwieldy proportions as to be quite unfit for the purposes of this Society. I therefore propose to limit myself to a very rapid survey of this wonderful Exposition, with but few explanatory notes, and scarcely any opinions or impressions.

Some idea of its vastness may be formed from the length of time in which it has been in preparation. The decree authorising it was signed by President Carnot on July 13th, 1892, since which time there have been three Presidents, viz., Casimir-Perier, Faure, and Loubet; and as many as eleven Ministers of Commerce having the supervision of it. The cost gives another illustration of its immensity. This was estimated at one hundred million francs; to be covered by twenty millions from the Government, twenty millions from the City of Paris, and sixty millions from the sale of tickets. The exhibiting nations contributed forty-six millions, but as the original estimate of expenses was largely exceeded, and as the current expenses were naturally very heavy—the grand illuminations costing so much as £2,000 each evening—it is not surprising that all the contributions have been swallowed up, and that a deficit exists. However, just as in the case of the Manchester Ship Canal, though its original shareholders have not benefited, the community in general has reaped great advantages; so in the case of France in general, and Paris in particular; inasmuch as it has been estimated that the extra money spent in France during the Exhibition reached the magnificent total of £4,000,000 sterling.

The Exhibition had one great advantage over all other exhibitions—it was not only the Paris Exhibition, but it was in Paris. English visitors always consider themselves in the centre of Paris when they are in the Place de la Concorde, and here, in this very square, was situated the principal entrance of the Exhibition—an entrance arranged on so extensive a scale that it could admit five thousand visitors per hour. It was quite true, however, that although this was the main entrance, there were only gardens, flowers and trees, mingled with some statuary, to see on entering, and it was necessary to walk to the Alexandre III. Bridge before the real interest of the Exhibition commenced. This elegant bridge spans the river at one bound, and if nothing else were to remain, it alone would be an enduring and worthy

memento of the glories of the Exposition. Its four monumental columns are exceedingly graceful and yet majestic; perhaps the span of the arch, the width of the bridge, and the general spaciousness of the neighbourhood seem to dwarf them somewhat, especially from the distance; but all the same, they are undoubtedly most imposing. And they, with the bridge, serve to commemorate the so-called Franco-Russian Alliance; for did not the Czar Nicholas II. lay the foundation stone and baptise the bridge with the name of his father? The bridge is continued in the direction of the Champs Elysées by the splendid Avenue Nicholas II. Turning into it we find two Palaces of Art; that on our right the Petit, and the one on our left the Grand, so called because of their difference in size. They replace the old Palace of Industry—a familiar sight to all old visitors to Paris—and are destined to be permanent structures. The Petit Palais is the property of the City of Paris, and had an exhibition of Retrospective French Art from early times to the time of the Revolution—to, say, the year 1800; at which period the Grand Palais took up the tale, and became an exposition of Contemporary Art, not only of France, but of other nations also. It was not only interesting, but instructive, to be able to compare the art of different nations in this palace, and one was not a little surprised to see the wonderful revelations made by some of the nations which are not generally considered to be in the forefront in matters of art, amongst which may be instanced Bosnia, Croatia, Ecuador, Mexico, and Peru.

We now cross the Seine to the Invalides Esplanade, where was placed one of the main divisions of the Exhibition. Here were to be found exhibits from all countries, of their national manufactures and industries, with examples of the decoration of furniture, public edifices, and dwelling-houses. These included carpets, furniture, bronze goods, jewellery, clocks, cutlery, wall papers, stained glass, crystal ware, glass, lighting, heating, and ventilation. In addition there were to be found examples of French provincial houses, such as those of Brittany, Gascony, Lorraine, etc.

Returning to the river, we then passed through what to a geographer was always one of the most interesting and instructive portions of the Exhibition, the famous Street of Nations: being a wonderful series of the official pavilions of the Foreign Powers, most of them being typical examples of national architecture, if not, as in the case of Belgium and Great Britain, actual copies of existing buildings. Here the geographer reaped the advantages of the traveller, and with infinitely less trouble. Here in a half-hour's promenade he could study the architecture of countries from north and south, and east and west of Europe, Central America, and parts of Asia. If the walk were continued to the Trocadero section on the opposite side of the river, this geographical lesson could be further extended by the pavilions of all the French colonies and protectorates; for instance, Algeria, Tunis, Senegal, Soudan, Dahomey, Ivory Coast, French Guinea, Cochin China, Cambodia, Annam, Tonquin, Somali Coast, Mayotte, Comoro Isles, Tahiti, New Caledonia, Martinique, Guiana, Réunion, Guadaloupe, French Congo and Madagascar. But the wealth of illustration did not end with the French colonies, for, by an act of great grace, the Administration conceded the fact which Frenchmen, as a rule, endeavour to ignore, that other countries also possess colonies, and so pavilions were

permitted which represented the Portuguese colonies in Asia, Africa, and Oceania; the Dutch Indies, Russian Asia, and some English colonies; also pavilions of China, Japan, the Transvaal, and Egypt.

But it must not be imagined that the geographical lessons were taught merely by the exteriors of these buildings, for their greatest treasures were within. It is utterly impossible to give more than the faintest idea of these treasures—treasures not so much in the sense of their intrinsic value, although that was great, as in the wonderful wealth of information they afforded to those who had the time and inclination to learn from them. Suffice it to say that here were gathered specimens of the natural products of these countries, their grains, metals, trees, their arts, manufacturing and scientific attainments. To these were added, in many cases, examples of many of the native products in course of production by the natives themselves, these natives throwing strong light on ethnological questions. Again and again I traversed this wonderful section of the Exposition, but I never exhausted one hundredth part of its amazing riches.

On the opposite side of the river to the Street of Nations was a kind of counterpart, known as the Street of Paris, but of quite a different character. Coinciding with its name, taken from the Gay City, it offered a number of light amusements, such as exhibitions of marionettes, dancing, singing, etc.; with such curiosities as the Topsy-turvy House, where everything appeared to be upside down. Here also were the Pavilion of the City of Paris, the Aquarium, and the Great Congress Hall, where, at the height of the season, congresses were held every day.

Between this section and the Trocadero was Old Paris, a very elaborate representation of the architecture, trades, streets, gates, churches, markets, taverns and life of the old city. The population were dressed in the costumes of four periods—Middle Ages, Renaissance, seventeenth century, and eighteenth century to the time of the Revolution.

We must now notice three other imposing palaces on the banks of the Seine, all of them on the opposite side to Old Paris. The first was just opposite, and was perhaps the most effective. It was the Palace of Arms—both military and naval. The principal entrance from the river was one of the most striking pieces of architecture in the whole of the Exhibition. It represented the gateway of a feudal fortress, with battlements and parapets. This building contained a wonderful collection of arms of all kinds and periods, representations of the costumes of the dress of the soldiers of the French Army and Navy, as well as those of other countries; besides everything required for camp life and active service, such as sanitation, organisation, feeding, medical service, and the Red Cross.

Then came the Palace of Navigation and Commerce, the name of which sufficiently indicates the character of the exhibits it contained. In close connection with it were several smaller buildings, each being the exhibit of some powerful steamship company; for instance, the North German Lloyd, the Peninsular and Oriental Company, the Messageries Maritimes, etc. The first of these was particularly striking, and was a perfect revelation of the immense resources of this powerful company, the size of their fleet, and the ramifications of their operations.

A geographer could not have wished for a greater treat than a few hours of careful study in this palatial building.

The third palace was the one devoted to the products of Forests, Hunting, Fisheries, and Crops, with all the tools, arms, utensils, and implements required in these various divisions.

This brings us to the great division of the fair located in the Champ de Mars, by far the largest division of the whole, and in many respects the most important. At the end nearest to the river is the Eiffel Tower, a never-failing wonder, and at the other end another wonder exists in the enormous Salle des Fêtes. It is a gigantic building, indeed so large that the French fear they will never be able to use it except for the opening ceremonies of exhibitions, and as these cannot come but at long intervals, it seems likely to be somewhat of a white elephant. Between these two extremities there was an ocean of wonders, which I cannot do more than indicate in the most cursory manner. Standing under the Eiffel Tower, and with your back to the river, there was presented to the eye a magnificent view, which was glorified when darkness fell upon the scene, when myriads of electric lights and fairy lamps, assisted by powerful search-lights, the wonderful fairy fountains, and the Grand Palace of Electricity, illumined the grounds, the buildings, and the outlines of the great tower. Around the feet of the tower were clustered a number of panoramas, pavilions, palaces, the Celestial Globe, and other side shows; whilst at either side of the beautiful gardens were the real exhibition buildings. Those on the right included the portions allotted to the Chemical Industries, Public Works, Education, Teaching, Printing, Photography, Books, Music, Geography, Cosmography, Topography, Money, Medicine, Surgery, etc., etc. The buildings on the opposite side were equally extensive and varied in their contents. Here were found the departments devoted to Mines and Metallurgy, with wonderful specimens taken from the bowels of the earth; then exhibits of articles made from these products of the mines, and the machines and tools used in their manufacture. Then came a very important group for Yarns, Cloths, and Clothing. Here were all kinds of machines for the production of the yarn from the natural products, not only spinning, but combing, carding, winding, and twisting; then machines for making the yarn into cloth, whether by weaving or other processes; afterwards machines for bleaching, dyeing, printing, and finishing of all kinds of materials; and then all the machines necessary for the manufacture of the tissues into garments. There were also exhibits of yarns and goods in cotton, flax, hemp, wool, silk, etc., with some extensive and magnificent exhibits of laces, embroideries, and trimmings; followed by a section in which were exhibits of all kinds of clothing used by men, women, and children. This naturally led up to the section devoted to articles of dress of a luxurious character, such as artificial flowers, feathers, fancy buttons, fans, etc.

At the end of these palaces, on either side of the Château d'Eau and the Palace of Electricity, were the immense machinery galleries, and the enormous furnaces and boilers. The horse power in constant use amounted to 20,000, and could, in case of necessity, have been raised to 40,000. Three-quarters of this immense power was required for electricity for lighting, there being more than 20,000 lamps in the

Exhibition. Here, to a Manchester man, the interest in the Exhibition culminated, and here I must leave it. I cannot refer to the moving platform, the electric railway, the Swiss village, the restaurants of all nations and all prices, and the thousand and one attractions which, by their multitude of riches, embarrassed the visitor. Suffice it to say that, putting all its faults and short-comings at one side, the Exhibition was a truly wondrous sight, a veritable dream of beauty. Seventy-six thousand exhibitors, of whom thirty-six thousand were French and the remaining forty thousand foreigners, brought the best of their works—a revelation of the progress of civilisation, colonisation, science, medicine, and human knowledge generally. Art triumphing in all its forms—a patient study of all social questions—a magnificent selection of the most astonishing results of human thought—palaces filled with the marvels of the pen, the forge, the loom—the nations of the world, in a generous spirit of rivalry trying to outvie each other, made a ravishing, instructive, and never-to-be-forgotten spectacle of the Paris Exhibition of 1900.

At the Chadwick Museum, Bolton, Mr. W. W. Midgley, F.R.Met.S., gave an interesting lecture on the "Carboniferous Limestone Rocks." He referred to the interesting characteristics peculiar to the limestone formation as met with in the localities of Clitheroe, Malham, Settle, and Ingletton, or in the Castleton, Matlock, Buxton, and Dove Dale districts of Derbyshire; and by means of photographs of typical spots, thrown on the screen by oxyhydrogen light, recalled many pleasant holiday visits made to these places. Wherever the carboniferous rocks are to be found, they furnish a happy hunting ground, alike to the geologist, the botanist, and the entomologist; while the clear rivers have ever been the favourite resort of the disciples of Charles Cotton and Izaak Walton. Besides the attractions of the caverns and their contents, there are the "pot holes," the "swallow holes," the subterranean streams, coming to the service, as at Malham Cove, Flam, and other places, and the "ebbing and flowing wells," as found near Giggleswick. After explaining the position in relation to other rocks of the earth's surface and the conditions under which limestone was deposited, he concluded by showing examples of the fossil organisms of which it is composed.

POST-CARBONIFEROUS COALFIELDS.—The *Colliery Guardian*, of December 21st and December 28th, 1900, publish a continued article upon the above subject, which is of much interest to both geologists and geographers. A perusal of the article in question enables even the ordinary reader to grasp the importance to the commercial world of the coal deposits which are of later formation than those dating back to the carboniferous period, even though they may be inferior both in quantity and quality to the older formations. The distribution of the less ancient coal-beds is extremely wide, and the mineral obtained from many of them is very little inferior to that which the carboniferous rocks afford. The very general distribution of the post-carboniferous coalfields throughout the world is very plainly indicated by the series of clear diagrammatic maps which illustrate the article. It may be stated, generally, that such coal deposits extend, practically, "from China to Peru," and the coalfields of Japan, India, Tasmania, Queensland, and South Africa are all illustrated in the very graphic and well-drawn diagrams referred to; while other equally remote portions of the globe are referred to in the text in the same connection. The subject matter of the article is of general interest, and, as before stated, is specially so to geographers, as, indeed, is a considerable proportion of the excellent geographical matter contained in the *Colliery Guardian* from time to time.

GEOGRAPHY AT THE PARIS EXHIBITION.

By Professor PATRICK GEDDES, of Edinburgh.

[Addressed to the Society in the Library, Tuesday, November 27th, 1900.]

YOU have all been more or less interested as geographers in the Paris Exhibition. I visited the Exhibition in the office of Secretary to the Paris International Assembly. It differed largely from its predecessors in having not only a character of technical and scientific interest, but also a very marked geographical interest. Of course, the promoters had to consult practical convenience a great deal, still there was more order and classification than might have been expected.

First of all, come the art galleries, and close at hand was the enormous range of greenhouses. The exposition was one which was pre-eminently technical if you will, but it was everywhere permeated by historical interest, and history, as you know, is the other eye of geography, and geography the other eye of history.

One feature struck me very forcibly, and that was the way in which the side shows—the entertainments and the amusing parts of the Exhibition—were neglected for exhibits of more scientific interest and educational value. History predominated everywhere. A world-wide education in history was really before us.

The geographical movement was further expressed in the great development of plans and maps bearing on the material improvement of the world; for instance, some of the Trans-Siberian Railway, and of the Canal Systems of Russia. The great exhibition of maps and panoramas was most instructive. One very notable exhibit which I think deserves mention was the relief map of France, which was a large map in true detail and proportion without that unfortunate exaggeration of the scale which makes relief maps so much discredited; also the great globe of the world in relief may be mentioned as particularly interesting. The panorama of Mont Blanc was a really magnificent panorama on a large scale, and was the work of the same author, the painting of which had taken four summers.

As I had only six months in the Exhibition, I had not time to see the whole collection.

The Colonial exhibits of the different countries were often of great interest and great beauty; for instance, it was a great revelation to me to see that perfect architecture of the Soudan. In the same way, with many other strange countries, one was able to see the actual life and manners of Ashantee, and other strange lands which previously were merely names to us. On the other hand, some of the exhibits from British Colonies were so poor that I was pleased to be shown a

letter from an eminent Colonist, received by an official of the Exposition, who said that from a feeling of friendship he would not attack him in the newspapers, but would address him privately by letter, and so far was he from appreciating the collection of Colonial exhibits that he bitterly grudged the time it took to get past them, a statement with which I cordially agreed. You will perhaps recall that we have all seen in exhibitions—exhibitors of some great and important industry who seem to have had nothing better to do with their exhibits than to arrange them in a kind of kinder-garten pattern or to use them in the construction of a dome or an obelisk. I was much impressed in the Exhibition with the way in which places that were most empty of visitors were those places which were most inartistically arranged.

Passing along, one came to the exhibits of Algeria, the Byzantine, and then to the Moorish, all very interesting and instructive. One went through at once the region and the history of the country, and was able to form an idea of the whole. I made, with my own children, the experiment of turning them loose in the Exhibition, and they went to these panoramas again and again, and in this way educated themselves by the eye as the public were also doing. This education by the eye received here its greatest and fullest development. You will recall how largely unfavourable to the Exposition had been the press, not only in England, for the French press also was not so very much more generous towards it than that of other countries. One reason of this was, I take it, that the literary world, the writers, poets, and so on, were little interested in this exhibition of teaching by the eye, and so it came upon them rather as a shock.

The culmination of the whole, the real clue to the Exhibition was, I think, to be found in the Rue des Nations—the Street of National Buildings. Here was represented Byzantine, Spain, Germany, Finland, Norway and Sweden, Belgium, England, Hungary, Bosnia, Austria, America, Italy, and a great many other nations. The historical character was obviously expressed; even the United States building was historical, the dome of the Capitol at Washington being reproduced in miniature. Here were the wooden buildings of Norway and Sweden, the Renaissance Buildings of Spain, the Mansion House of our own country, the Palace of Hungary, and the Châlet of Bosnia. Also the geographical character was notable in many cases, some were Geographical Museums; and I would like to call to your memory the Exposition of Norway and Sweden, and still more remarkable and typical was the Museum of Finland. It was interesting to observe the way in which place determines institutions, and institutions determine families, and families develop interests, and so on, so that all are linked in some organic way. This is one view of things which we may call the fatalist view of geography, but the other side of this argument, the conception that man is master of his fate, was also worked out for us in this Finnish Pavilion. Here this strange, brilliant people, had shown us the way in which their strenuous social life was extending itself and expressing itself not only in crafts, but in the highest arts. Here was worked out experimentally the type and character of regional museums.

I should like to say a few words of the project of our Association which, not content with expounding the Exposition during the summer,

is now trying to preserve some of its best lessons for future purposes, not only for the benefit of Paris, but for wider influence throughout the whole world.

In the educational galleries there were many interesting exhibits, and all the spaces were filled with the heads of great academies, colleges, etc.

These national pavilions are all coming down, but still the attempt has been worth something, as showing a type of a new and still higher geographical movement in which all the different countries have co-operated in expressing their individuality and general character.

SATARA NOTES, BOMBAY.

A VERY curious phenomenon was noticed in many parts of this district. An extraordinarily severe cold was felt on the 13th and 14th ult., and water stored in earthen pots turned into ice. One cannot easily guess the feelings on such an occasion of an illiterate native who is out of touch with the busy world outside where tons of ice are turned out for daily consumption; but the curious part that the atmospheric influences played was to actually burn some of the standing crops, a thing unheard of by the cultivator. I happened in those days to be away from home, and in the interior of the district, and have seen with my own eyes a field with a crop of sweet potatoes raised thereon, actually blanched with cold. It would not be surprising to hear that water was turned into ice in places like Mahableshwar, where I know for certain that in the month of October it does often reduce water kept in earthen pots to a rather solid state; but it is out of men's memory that cold ever burned standing crops in districts where the cold prevails at most but for a month in the year, and even then cannot be called severe. The phenomenon looks very much like the blight which the Irish farmers often complain of.

Satara seems to be the spot marked out for the location of the Research University. There has been a good deal of correspondence going on in the local press ever since Mr. Whiting's able letter made its appearance in the *Times of India*. Mr. Whiting has really handled the subject very ably, and the Research Commission should not let go unnoticed such an opinion of one of the engineering experts of the Bombay Presidency. Now that it is settled that the Research University is not to be located anywhere outside the Bombay Presidency, and taking for granted that crowded places like Bombay, Karachi, Poona, Ahmedabad, or Belgaum will not suit the plans of the Research University, Satara has a fair claim to be chosen, being not only a central place in the Presidency, but answering also all the requirements of an institution of the category of a Research University. If memory fails me not, the late Dr. Lisboa happened once to strongly impress the fact on his audience that there was no place in the Bombay Presidency so suited for the occupation of either botanist, geologist, or mineralist as that spur of the Sayadris which traverses the Satara district. He hinted, of course, at Mahableshwar and Mahableshwar would really be a capital place for a Research University, but for its one drawback, the heavy rainfall which prevents people from staying there throughout the year, and Satara, which is only 32 miles off, with a climate as good as Mahableshwar and the research fields scattered about, cannot but be the place for the Research University.—*Catholic Examiner*, March, 1901.

PROCEEDINGS OF THE SOCIETY.

JANUARY 1ST TO APRIL 30TH, 1901.

The Children's Party took place on Saturday, January 5th, 1901, in the Coal Exchange, Market Place. The Victorians welcomed the children at five o'clock. Music and dances amused the children for a time, and at six o'clock a fine set of geographical lantern slides, lent by Mr. Payton and others, were exhibited. Games, romps, and refreshments for the little ones took up the time until eight o'clock.



At eight o'clock Mr. E. W. MELLOR, J.P., F.R.G.S., of Lytham, took the chair.

The Report of the Examiner on the work of the children during the year, in replying to geographical questions, was read.

Balshaw's Grammar School, Leyland,
January 3rd, 1901.

To the Secretary of the Manchester Geographical Society.

SIR,—I have the honour to report to you that I have examined the papers sent in answer to the questions in the Children's Corner of "Geography." To

give the younger children a chance of distinction and encouragement, I first divided the candidates into three sections, according to age, classing all over the age of twelve in Section A, all between twelve and ten in Section B, and all younger than ten in Section C. All were to be marked on the same scale, irrespective of age, but the highest in each division would secure a prize. Fifteen competitors entered, viz., four in Section A, seven in Section B, and four in Section C. The result is as follows:—

1. Effie Marsden, Section A, 201 marks. Prize: A Globe.
 2. George Jackson, Section B, 168 marks. Prize: Three Books, viz., Bonney's "Story of Our Planet," Ball's "Story of the Heavens," and Herbertson's "Geography."
 3. Donald McKegg, Section C, 157 marks. Prize: Atlas.
 4. Dorothy Johnson, Section B, 155 marks. Prize: Herbertson's "Geography."
 5. George Robertshaw, Section A, 150 marks.
 6. E. J. Robertshaw, Section B, 125 marks.
 7. Bertha Robertshaw, Section C, 98 marks.
 8. Jessie Johnson, Section C, 97 marks.
- These three (allowing for age) are so near that I have awarded each a small prize, viz., the London School Board Atlas.
9. Dorothy Millard, Section B, 88 marks.
 10. Gilbert Sutton, Section B, 83 marks.
 11. Lillian Stott, Section B, 80 marks.
 12. Christine Harris, Section B, 40 marks.
 13. F. Madeleine Oram, Section A, 35 marks.
 14. Anthony Roeder, Section A, 24 marks.
 15. Evelyn Harris, Section C, 20 marks.

The last four only commenced the competition; if they had shown a little more perseverance they would probably have taken higher places.

The work of the first four is extremely good; the papers of Effie Marsden, in particular, are excellent. Her age should, in my opinion, have excluded her from a "children's" competition, but as you, in setting and publishing the questions, omitted to fix a limit, she is properly and lawfully entitled to the prize, and I may add that the quality of her work would have secured her a high place amongst opponents considerably more advanced.

George Jackson, the youngest member of Section B, and Donald McKegg, the youngest but one of all the candidates, are to be congratulated on their success. They ought to be heard of again.

George Robertshaw would have done better to assimilate what he read, and then reproduce the substance in his own words. Seeking information and copying it straight off shows industry, but is not sufficient proof of knowledge.

If you should ask me to examine next year, I intend again to divide the candidates into "age" sections. Might I suggest that a top limit should be fixed by you, and announced along with the questions each month?

In conclusion, I wish you and your young friends a merry evening at your party, and a very Happy and Prosperous New Year.—Your obedient servant,

JAS. D. WILDE.

Head Master of Balshaw's School, Leyland.

Mrs. E. W. MELLOR, of Lytham, presented the prizes to the children who had won them, with a number of small consolation prizes. The children received them with great delight. The Society is indebted to Mr. S. H. Brooks, who provided the prizes for this year's distribution.

Mr. R. HOPE BROWN, Bolton, moved, and Mr. R. C. PHILIPS seconded, a very hearty vote of thanks to Mr. S. H. Brooks, to Mr. J. D. Wilde, the examiner, to Mr. Payton, to Mr. Mellor, for his kindness in coming from Lytham to preside, and to Mrs. Mellor, for her kindness in distributing the prizes and cutting the Casato cake, to Major Casati, for his gift of the large cake from Italy for the children, the lantern demonstrator, and to the ladies

and gentlemen of the Victorians who had done so much to make the party a great success.

This was received with applause, and carried.

Mr. MELLOR responded.

After which, games and dances were resumed until about half-past nine o'clock.

The 561st Meeting of the Society was held in the Coal Exchange, Market Place, on Wednesday, January 16th, 1901, at 7-30 p.m. The Rev. S. A. STEINTHAL in the chair.

Mr. HARRY NUTTALL proposed, Mr. R. D. CALVERT seconded, and Mr. J. R. NEWBY supported a resolution, that the sincere and earnest sympathy and condolence of the Society be forwarded to the families of Mr. Thos. Costley and Alderman Isaac Bowes, whose deaths have been reported to us, and whose loss we greatly deplore.

Dr. Reginald Kœttlitz, of Dover, who addressed the Society on a journey through North-Eastern Africa ten months ago, and who has been appointed surgeon to the British Antarctic Expedition, which leaves for the south polar regions this year for a stay of two or three years, and has had extensive experience in Arctic work, having spent three years in Franz Josef Land with the Jackson-Harmsworth Polar Expedition.

He addressed the members on this occasion on "Polar Work: The Need for it, and the Glory of it. From Patriotic Enterprising, Scientific, and Commercial Points of View." He pointed out what had been done, and what is still to be done in both North and South. He described the Arctic and Antarctic from experience, as well as from the accounts of other travellers, and pointed out the problems Polar investigations may help to elucidate. He strongly urged that Manchester, as an educational and commercial centre, should, specially, be interested and support such enterprises and research. The address was illustrated with lantern slides, lent by Dr. W. S. Bruce, of Edinburgh. There was a large attendance of members. Questions were asked, and replies given by Dr. Kœttlitz.

Mr. HARRY NUTTALL moved, and Mr. J. HOWARD REED seconded, a most hearty vote of thanks to Dr. Kœttlitz for coming to us at some inconvenience to himself, to give us this address, and for his most interesting address. The mover and seconder expressed a hope that the Antarctic expedition will have great success, and that we may have Dr. Kœttlitz with us again, to tell of the wonders he will see in the great Antarctic world. The resolution was passed unanimously, and Dr. Kœttlitz responded.

The meetings of January 23rd (Major St. Hill Gibbons on the Marotze Country) and January 29th (Mr. Stromeyer, C.E., on Professor Penck's map of the world) were both postponed, in consequence of the severe illness of her late Gracious Majesty Queen Victoria.

The 562nd Meeting of the Society was held in the Coal Exchange, Market Place, on Tuesday, February 5th, 1901, at 7-30 p.m. The SECRETARY in the chair.

The election of the following members was announced:—

ORDINARY.—Mr. J. S. McDougall, Mr. J. F. Bowman, Mr. J. H. Leeming, Mr. Geo. Norbury.

The following presentations were announced:—

Presented by Mr. W. P. Jervis:—*Progetto di Massima di Lavori Idraulici Nazionali nel Veneto*, di G. Jervis, of Turin. The Anthracitic Coal of Demonte, near Cuneo in the Italian Alps, by Chev. W. P. Jervis. Resurgat Sardinia, per G. Jervis. I Testori Sotterranei dell' Italia, per G. Jervis. Notice Bibliographique, par Professor A. Revel. Proiezioni cartografiche Cicoidali, nota di Professor Fiorini, Bologna. India in Relation to Great Britain; Considerations on its Future Administration, by Major T. B. Jervis, F.R.S. London: J. Petheram, 1853. Plan of the Ahmedabad Collectorate. Scale, one inch to a mile: By Major T. B. Jervis, Bombay, 1844. The Khanat of Bokhara. Prepared by Col. Baron Meyendorff. Lithographed by Major F. B. Jervis. London, 1843. The Island of Bombay, by Capt. T. Dickinson. 1812—16. Scale, one inch to 1,200 yards. Lithographed by Major T. B. Jervis. London, 1843. Obtained from W. P. Jervis:—Thomas Best Jervis as Christian Soldier, Geographer, and Friend of India, 1796—1857, by W. P. Jervis. London: E. Stock, 1898. Facsimile of Chinese Plan of Peking, by Major T. B. Jervis, F.G.S., F.R.G.S., May, 1843. Scale, about 10½ inches to one mile. Presented by Messrs. G. P. Putnam's Sons:—The Rockies of Canada, by Mr. Walter Dwight Wilcock, F.R.G.S. Fully illustrated. Presented by Mr. G. P. Reclus-Guyon, Edinburgh:—Bulletin of the American Bureau of Geography. Vol. i., Nos. 1, 2, 3. Presented by the Publishers:—"The Speaker." Nos. 62, 63, 64. Presented by the Agent General of Queensland, through Mr. Clement Wragge:—Illustrated Guide to Queensland, by the authority of the Agent General of Queensland, 1899. Guide to Queensland, by Mr. Charles Schaefer Rutledge, F.R.G.S., F.R.C.I. 1898. Information relating to Queensland, and its Resources. Also a complete list of Towns in the Colony, with descriptive particulars thereof. (Reprinted from the "Australian Handbook" for 1899. Published by Messrs. Gordon and Gotch, London.) How I went to Queensland, by a Girl who Emigrated. London, 1900. The Review of Reviews for Australasia, September, 1900. The Garden of Queensland, by Mr. George Essex Evans, 1899. The Year Book of Queensland, 1900. Queensland Woods, with a brief description of the trees, their distribution, qualities, uses of timber, etc., by Mr. F. Manson Bailey, F.L.S., Assoc. Soc. Reg. Bot. Belg., etc. Colonial Botanist. 1899. Queensland. What to do with our sons. By authority of the Agent General, 1900. Act and Regulations relating to Mining in Queensland. Brisbane, 1899. Pugh's Almanac and Queensland Directory, 1899, and three other pamphlets. Presented by Mr. A. J. Kennedy, F.R.G.S.:—"Trade Journals' Review," Vol. xii., No. 1. Presented to the Museum by Mr. John R. Newby:—A Scalp Lock of a Red Indian from the Western States of America.

The following letter from Mr. S. H. Brooks was read:—

Slade House, Levenshulme, Manchester.
8th February, 1901.

Mr. Eli Sowerbutts, Geographical Society, Manchester.

DEAR SIR,—I am very pleased to learn that the enlarged photograph has been duly delivered by Messrs. Grundy and Smith.

Also I beg to acknowledge receipt of notice of the election of my wife as a life member of the Society. Please let me know what is the amount required.

I have pleasure in sending you per bearer for acceptance by the Society the following volumes:—Travel. Australia, America, Arctic Regions, Asia, etc. Pinkerton's Collection of the Best and Most Interesting Voyages and Travels in all Parts of the World. Illustrated by about 200 plates, engraved on copper by Cook and Storer. 17 vols. Travel. E. D. Clarke. Travels in Various Countries of Europe, Asia, and Africa. 11 vols.

Trusting they will be of use to the Society.—Yours faithfully,

SAMUEL H. BROOKS.



The death of our late beloved Queen has filled all hearts with mourning. The following telegrams were forwarded from the Society to His Majesty the King and to His Royal Highness the Duke of York:—

COPY OF TELEGRAM TO HIS MAJESTY THE KING.

His Gracious Majesty the King, London.

Bowing to the Divine will in the awful stroke of the death of Her Majesty, our late beloved Queen, we respectfully desire to express our heartfelt sorrow and deep sympathy in the loss of your Majesty's Gracious Mother, and the beloved mother of her people.—Manchester Geographical Society, Eli Sowerbutts, Secretary.

COPY OF TELEGRAM TO HIS ROYAL HIGHNESS THE DUKE
OF YORK.

His Royal Highness the Duke of York, K.G., York House, London.

We desire respectfully to tender to your Royal Highness and the Royal Family our heartfelt sympathy at the death of Her Majesty the Queen. We also desire to express our sincere sorrow at the death of Her Majesty, at whose loss we all deeply feel to have lost a great, noble, and loving mother.—Manchester Geographical Society, Eli Sowerbutts, Secretary.

The following gracious replies have been received:—

THE REPLY OF HIS GRACIOUS MAJESTY KING EDWARD VII.
Buckingham Palace.

The Private Secretary is commanded to convey the thanks of the King for the kind expressions of loyalty and sympathy contained in the messages which you have forwarded to His Majesty.

30th January, 1901.

THE REPLY OF HIS ROYAL HIGHNESS THE DUKE
OF YORK, K.G.

York House, St. James's Palace,

January 23rd, 1901.

DEAR SIR,—I am desired by H.R.H. the Duke of York to ask you to convey to the Manchester Geographical Society the sincere thanks of His Royal Highness for their kind telegram of sympathy.—Yours faithfully,

(Signed)

(Sir) C. L. CURT, Equerry.

The Secretary, M.G.S.

We have pleasure in adding the following address by Mr. Gray, and poem by our veteran member, Mr. F. Curzon.

Mr. Gray (Hon. Sec. of the Belfast Naturalists' Field Club, one of our Corresponding Societies), at a meeting said:—Meeting there as citizens and members of a scientific society, it became them, before proceeding with the formal business of the evening, to refer briefly to an important event reported since they had entered the room—an event that had closed the Victorian era, and excited feelings of profound sympathy and sorrow through the United Empire, if not through the entire civilised world. He referred to the death of their most gracious Sovereign Queen Victoria, whose reign would be for ever distinguished for the advancement made in science and its application to the practical purposes of mankind, issues due in no small degree to the impulse imparted by the efforts of the late Prince Albert, a reign no less remarkable for the cultivation of domestic and moral virtues, which, in the person of the Sovereign, shed a brilliant lustre around the throne of Queen Victoria, whose death they each and all most sincerely deplored.

JANUARY, 1901.

OUR Queen is dead, who reigned in all our hearts,
Let all be hushed as her fair soul departs;
The sword be sheathed, and the proud flag be furled;
Her death should bring sweet peace to all the world.
Nor fleets, nor armies, can avail us now!
A holier crown is on our Sovereign's brow:
She ruled us not for glory, but for love,
The Prince of Peace receives her soul above.

FRANK CURZON.

The deaths of Mr. Wm. Kessler and Mr. Robert Dobson, both of whom have been long members of the Society, and have manifested much interest in its work, were announced.

Mr. J. J. COTTRILL moved, and Mr. J. HOWARD REED seconded, a resolution that the Secretary convey to the families of these members our great sorrow at their departure, and the earnest wish of the members to be allowed to join in very deep sympathy and condolence on the sad events.

His Royal Highness the President, the Duke of York, being announced to be unwell, and the Chairman, the Rev. S. A. Steinthal, Mr. G. PEARSON moved, and Mr. J. HOWARD REED seconded, that a letter of kindly sympathy should be sent to His Royal Highness the Duke of York, the President, and to the Rev. S. A. Steinthal.

Mr. S. H. BROOKS moved, and Mr. Holt seconded, a resolution that the loyal congratulations of this Society should be forwarded to His Gracious Majesty the King on his accession to the throne, and the Chairman, Mr. Nuttall, was requested to sign the same.

The following address was sent, and His Majesty has forwarded the following gracious reply to the address:—

To His Most Gracious Majesty the King.

May it please your Majesty, we, the members of the Manchester Geographical Society in meeting assembled, desire most respectfully to be allowed to participate with the whole nation in an expression of our profound sorrow at the departure of Her Most Gracious Majesty Queen Victoria, at the close of a prolonged and glorious reign, beloved by her subjects at home and abroad.

The members of this Society desire most respectfully to tender to your Majesty our heartfelt sympathy, and respectfully to tender to your Majesty, to your beloved Consort Queen Alexandra, to His Royal Highness the Duke of Cornwall and York, and to the other members of your Royal House, the heartfelt assurance of our loyalty and devotion to the throne and person of our Majesty.

Signed on behalf of the Society,

HARRY NUTTALL, Chairman.

The following gracious reply has been received:—

Home Office, Whitehall,

1st April, 1901.

SIR,—I am commanded by the King to convey to you hereby His Majesty's thanks for the loyal and dutiful address of the members of the Manchester Geographical Society, expressing their congratulation on His Majesty's accession to the throne.—I am, sir, your obedient servant,

(Signed) CHAS. T. RITCHIE.

The Chairman of the Manchester Geographical Society,

16, St. Mary's Parsonage, Manchester.

Mr. A. MONTEFIORE BRICE, F.G.S., F.R.G.S., addressed the Society on "The Great Siberian Railroad." Illustrated with lantern slides.

Mr. Brice referred to Siberia—A vast region—Its scant history—A terrible stigma—The new awakening—Untold wealth—Rapid expansion—Russia's Colonial Empire—Emigration by rail—Agricultural resources—Mineral riches—The railway—Its early days—The Emperor—A vast scheme—Rapid construction—An engineering record—German enterprise and American

'cuteness—The Siberian express—Life on the road—Unparalleled distances—Forest and stream—Thirty miles of bridges—A peace army—How they live—Stations and towns—The "Siberians"—Women and children—Beautiful fashions—Cleanliness and the other thing—A travelling church—A frozen lake—The wonderful ice-breaker—Eastern Asia—Russia and China—The mighty Ameer—The line in Manchuria—Vladivostock and Port Arthur—English sellers and Russian buyers—A word to my countrymen.

Questions were asked, and some dissent expressed at some of the views of Mr. Brice.

Mr. BRICE replied.

Mr. MASSEY moved, and Mr. DOWDALL seconded, a hearty vote of thanks to Mr. Brice for his admirable and valuable address.

Mr. BRICE responded.

The 563rd Meeting of the Society was held in the Library, on Tuesday, February 12th, 1901, at 7-30 p.m. In the chair, the SECRETARY.

The election of the following members was announced:—

ORDINARY.—Mr. Richard Noar, Mr. E. Tootal Broadhurst, Mr. James Renshaw, Mr. H. R. Spurr, Mr. James Booth, Mr. Thos. W. Hepplestone, Mr. Paul Ogden, Mr. Ed. Dawe, Mr. Geo. F. E. Rodger, Mrs. Harris.

LIFE.—Mrs. S. H. Brooks.

The following presentations were announced:—

Presented by Mr. J. C. Blake, F.R.G.S.:—Pilgrimage to Al-Madinah and Meccah, by Sir R. F. Burton. Two vols. A Mission to Gelele, King of Dahome, by Sir R. F. Burton. Two vols. First Footsteps in East Africa, by Sir R. F. Burton. Two vols. Vikram and the Vampire: Tales of Hindu Devilry, by Sir R. F. Burton. (These volumes are one of the most valuable gifts made to the Society.) Presented by Rev. T. Wakefield:—East Africa and Uganda Mail. Vol. ii., Nos. 47-50. Presented by the Publishers:—"The Speaker." Presented by the Author:—Down the Burmejo, by Mr. A. A. G. Dobson. Presented by Mr. George Thomas:—Observations on Improvements of the Town of Manchester, by Mr. Wm. Fairbairn. Nine Views of Old Manchester. In Frame. Coloured View of the Castle of St. Angelo and Tiber, Rome. In Frame. Presented by Mr. S. H. Brooks, F.L.Inst.:—Photograph of Her late Majesty Queen Victoria. Taken at Holyhead, about to disembark from the Royal yacht on her return from Dublin, April, 1900. Clarke's Travels. 11 vols. Pickerton's Voyages and Travels. 17 vols. Presented by United States Department of Agriculture:—Weather Bureau. Report of the Chief Weather Bureau. 1898-99. 2 vols. Presented by United States Coast and Geodetic Survey. The Trans-continental Triangulation and the American Arc of the Parallel. Presented by Messrs. A. and W. Walker:—Last Portrait of Her Majesty the Queen. Framed.

The following letters have been received from His Royal Highness the Duke of Cornwall and York, and from Mr. R. W. Kessler, which were read.

York House, St. James's Palace, S.W.,

11th February, 1901.

DEAR MR. SOWERBUTTS,—I am requested by H.R.H. the Duke of Cornwall and York to convey through you to the Manchester Geographical Society his thanks for the kind expressions of sympathy with him during his illness, which you have been good enough to send him.—Faithfully yours,

(Signed) F. DE WINTON.

33, Dale Street, Manchester.

February 12th, 1901.

DEAR SIR,—On behalf of the family of my late father, I desire to tender our grateful thanks to your Society for the sympathetic message sent to us in our sorrow, and to assure you that we appreciate most highly this testimony of the regard in which our father was held by your members. Our sorrow is great, but it is softened by the knowledge that his worth has been recognised by those amongst whom he so long lived.

Please accept, then, the reiteration of our grateful thanks, and believe me, on behalf of the family of the late Mr. Kessler, yours most sincerely,

R. W. KESSLER.

Eli Sowerbutts, Esq.,

Secretary, Manchester Geographical Society.

The following letter from Mons. C. Dejeux was read:—

Union Coloniale Française.

Paris, le 11 février, 1901.

MONSIEUR.—L'Union Coloniale Française est chargée par de hautes personnalités de recueillir les éléments d'un travail sur l'activité déployée en matière coloniale par les grandes puissances Européennes.

Cette étude, destinée à la publicité, doit être préparée par la réunion de documents d'une provenance sûre. Nous ne croyons pouvoir mieux faire que d'avoir recours aux hautes compétences de la Manchester Geographical Society pour obtenir les renseignements que nous prenons la liberté d'énumérer ci-dessous.

A. Liste des Sociétés de propagande coloniale existant actuellement dans la Grande-Bretagne, avec quelques renseignements sommaires sur leurs moyens d'action, sur le but qu'elles poursuivent et les résultats qu'elles ont obtenus.

B. Liste des Sociétés coloniales ayant obtenu de grandes concessions de terre, avec quelques renseignements sur la méthode de mise en valeur adoptée et les résultats effectifs de l'exploitation. Il serait intéressant de connaître en outre les conditions générales mises à l'octroi des terres et si le programme assigné aux Sociétés concessionnaires a pu être rempli.

C. Liste des Expositions coloniales spéciales ayant eu lieu dans ces dernières années, soit dans la métropole, soit dans les colonies, avec quelques renseignements sur leur organisation, leur importance et leur caractère.

Nous vous serions particulièrement reconnaissants de bien vouloir nous faire adresser ces renseignements sous la forme de notes manuscrites ou de documents imprimés s'il en existe.

Veuillez agréer, monsieur, avec nos remerciements anticipés, l'assurance de nos sentiments très distingués.

Pr. le Secrétaire Général.

C. DEJEUX.

The Manchester Geographical Society.

Mr. C. E. STROMEYER, C.E., Mem. Council Inst. Naval Architects, addressed the Society on "Surface Equivalent Projections of the Earth," with special reference to the suggestion of Professor Penck, of Vienna, for a map of the world on a uniform scale. This important question to geographers has been discussed at more than one International Geographical Congress, and will be dealt with again at the next Congress.

Mr. Stromeyer addressed the International Geographical Congress at Berlin last year on this subject. He told the Manchester Society that Professor Penck had at three International Geographical Congresses brought forward a motion that a map of the world on a scale of one to a million should be produced. This would be about seventeen miles per inch. Professor Penck does not appear to have taken any active steps in the matter, so that at the Congress last year he (the speaker) moved, as an amendment, that before doing anything a system of projection should be fixed upon, and this was adopted. Mr. Stromeyer contended that if this map on a scale of one to a million was ever produced it would be well to cut it up into seven zones, and each zone sub-divided into six belts. It would simplify map-making enormously if a uniform system of projection was adopted. On the Scotch Ordnance survey there was nothing but curved lines for longitude and latitude, whilst in the English survey there were straight and curved lines. Every country seemed to have a different system of projection, which caused great confusion.

The address was illustrated with a number of diagrams of much interest. Hearty thanks were given to Mr. Stromeyer, who responded.

The 564th Meeting of the Society was held in the Memorial Hall, on Wednesday, February 13th, 1901, at 7-30 p.m. In the chair, Mr. HARRY NUTTALL, Vice-Chairman of the Council.

Major A. ST. HILL-GIBBONS, F.R.G.S., addressed the Society on his exploration work in the Barotze country, and on his Journey through Africa from South to North.

Major Gibbons took up exploration work in Africa in 1895. During 1895-6 he journeyed through the Kalahari desert to the Zambesi. He prepared a map of the district bounded by the Zambesi, from the Victoria Falls to Lialui (15° 13' S. Lat.) in the South and West; by the 15th parallel as far as the Kafukwe river in the North; and by 26° E. Long. in the East. In 1898-1900 he travelled up the Zambesi from its mouth to its source—completing the map of Marotseland as far as the Kwito in the West, the Congo-Zambesi watershed in the North, and the Kafukwe river in the East. He went through Katanga to Lake Mweru, Tanganika, Kivu, and Albert Edward to Kampala (N.W. of Lake Victoria), crossing the Victoria Nile below Murchison Falls, and along the Nile to Egypt. This journey was more than double the travelling distance from Bulawayo to Khartoum. The discovery of the source of the Zambesi being a most interesting geographical event, and the introduction of steam navigation on the middle Zambesi as far as Guay-Zambesi confluence most important.

Major Gibbons' work is therefore of far-reaching and important consequence.

The address was illustrated with a number of Major Gibbons' photographs.

Mr. S. OPPENHEIM, J.P., moved a vote of thanks to Major Hill Gibbons for his address, Mr. SOUTHWORTH seconded, and Mr. J. HOWARD REED supporting, the motion was carried.

Major HILL GIBBONS responded.

The following correspondence was read:—

Mr. Leon Vigols, Mrs. Marsden, Mr. A. Montefiore Brice, Mr. Wm. Gray, Mr. Geo. Philip, junr., F.R.G.S., Mr. A. J. Kennedy, F.R.G.S., Mr. J. C. Blake, F.R.G.S., Rev. S. A. Steinthal, F.R.G.S., W. Albert Hickman, Rev. Philip Read, Rev. F. Galpin, Mr. H. H. Smith Carrington, Dr. R. Kœttlitz, Mr. S. Oppenheim, J.P., Mr. R. H. Joynson, J.P., Mr. T. M. Tetley, Mr. H. Nuttall, Mr. J. S. Reid, Mrs. Herbertson, Major Alfred St. Hill Gibbons, Messrs. Wm. Bailey and Company, Mrs. Ainsworth, Mrs. Wilde, Professor A. W. Ward, LL.D., Dr. W. G. Black, Mr. F. J. Robertshaw, Mr. E. W. Greg, F.R.G.S., Mrs. F. Robinson, Mr. T. Hoyle, Mr. E. W. Cowan, Rev. R. H. Lyall, Mr. E. W. Mellor, F.R.G.S., Liverpool Geographical Society, Sir C. T. Cust, Mr. C. H. Bellamy, Mr. Joel Wainwright, Mr. T. Connolly, Mr. J. D. Wilde, M.A., Messrs. George Philip and Son.

The 565th Meeting of the Society was held in the Coal Exchange, on Tuesday, February 19th, 1901, at 7-30 p.m. In the chair, Mr. J. HOWARD REED.

The Minutes of the previous meetings were read and approved.

Replies to votes of sympathy were read from His Royal Highness the Duke of Cornwall and York and Rev. S. A. Steinthal.

Mr. J. S. REID (Governor, Nicholls Hospital) addressed the Society on "The Wye Valley," being notes on a cycling tour from source to sea of the Wye river, carried out through last Whit-Week. The journey was one of 400 miles, and Mr. Reid described this interesting county, topographically, naturally, and historically. The route was from Manchester by Beeston Castle, Malpas, Bangor-on-Dee, Oswestry, Newtown, etc., on the Severn. The source and upper reaches of the Wye, from Glan Severn to Rhayadr, the picturesque "Middle Wye," from Rhayadr to Hay, and what is usually spoken of as "The Wye Valley," from Hereford to Chepstow, were illustrated. The route home—through Gloucester, Warwick, Kenilworth—was also illustrated with lantern slides, and contour and road maps.

Mr. J. J. GLEAVE moved, Mr. J. J. COTTRILL seconded, and Mr. C. E. READE supported a motion that a very hearty vote of thanks be tendered to Mr. Reid for his most interesting and useful address.

Mr. REID responded.

The 566th Meeting of the Society was held in the Library, on Tuesday, February 26th, 1901, at 7-30 p.m. In the chair, Mr. J. HOWARD REED.

The Minutes of the last meeting were read and approved.

The proposed excursion to Roubaix was mentioned.

An address by Mr. BELLAMY, and forwarded by him, on "*En Route* to the Passion Play," and an address by Mr. J. C. BLAKE, sent by him, on "The Passion Play," and an address by Mr. BELLAMY, sent by him, on "The Paris Exhibition," were read. These were illustrated with special slides prepared for this meeting.

Communications from Dr. A. J. Herbertson on "The Geological Association" were submitted, and from the Secretary of the Mary Kingsley Society of West Africa, announcing the institution of that society, and stating the objects of the society, and terms of subscription were read.

Hearty thanks were given to Mr. Bellamy, Mr. Blake, and to Dr. Herbertson for their communications.

The 567th Meeting of the Society was held in the Library, on Tuesday, March 5th, 1901, at 7-30 p.m. In the chair, the SECRETARY.

Minutes of last meeting were read and approved.

The election of the following new members was announced:—

ORDINARY.—Miss Ada Baxendell, Mr. W. J. Hawken, Mr. R. H. Berry, Mr. W. L. Norbury, Mr. Walter Stonehewer, Mr. F. Kilner Mabbot.

The following correspondence was read:—

Mr. R. Stewart, Mr. Wm. Bradshaw, Mr. J. B. Sutton, Mr. H. C. Pingstone, Mr. F. Womersley (Hon. Secretary, Ship Canal Shareholders' Association), Mr. J. C. Blake, Major-General Sir F. de Winton, K.C.M.G., F.R.G.S., Mr. John Angell, Rev. S. A. Steinthal, F.R.G.S., Mr. E. F. Steinthal, Mr. E. A. Reaves, Mr. H. Yule Oldham, Mr. Fred. S. Oppenheim, Mrs. Smithson, Mr. Joseph Watson, Mr. S. H. Brooks, F.R.G.S., F.I.Inst., Mr. G. H. Gaddum, Professor T. H. Core, Mrs. Ainsworth, Messrs. Dean and Dawson, Rev. Philip Read, Mr. E. F. G. Hatch, M.P.

The Rev. PHILIP READ, of Dunsear, addressed the Society on "Sights and Scenes in Ceylon," illustrating his address with lantern views.

Bringing to the subject the special knowledge derived from residence amongst the Cingalese, Mr. Read made his lecture remarkably interesting. He dwelt on the peculiarities of the inhabitants—the most heterogeneous collection he had ever come across—gave some interesting historical information, and mentioned that first the Portuguese, then the Dutch, and lastly the British came into possession in the early part of the last century. He also showed how the industries of the island had developed under British rule.

Questions were asked, and replied to by Mr. Read, and the Rev. W. POPPLEWELL, of Bolton, moved a hearty vote of thanks to Mr. Read for his most interesting address. Mr. ROBERTSHAW seconded the motion, which was carried. Mr. READ responded.

The 568th Meeting of the Society was held at the Society's House, St. Mary's Parsonage, on Monday, March 11th, 1901, at 7-30 p.m. In the chair, Mr. HARRY NUTTALL, Vice-Chairman of the Society.

The Vice-Chairman and other members of the Council received the members in the Library, at seven o'clock, and, after some conversation, proceeded to the room set apart for the temporary housing of part of the Society's collection of exhibits intended to form the foundation of a Commercial and Geographical Museum.

The SECRETARY gave a short account of the origin and progress of the collection, and of the uses to which in part it had already been put, and to the more extended use to which the collection was intended. He especially mentioned the great assistance of the Imperial Institute, and mentioned other donors.

Mr. HARRY NUTTALL, the Vice-Chairman of the Society, declared the museum open, and said that the question of Commercial Education became more important every day, as they saw from the competition which was arising in all parts of the world. Two years ago a conference of geographical societies was held, with the object of forming such museums and exchanging specimens, in order that they might be on view and be of use in illustration of various lectures. Anyone who saw the American educational exhibit in Manchester must have been impressed with the importance of this question of commercial education, but, at the same time, he felt that what he should like to have seen was an exhibition of what was going on in this country. He had an impression that there was a great deal more going on than many imagined. Many developments of a scattered kind were taking place. The specimens they had together that night were only the nucleus of a greater collection. There were important commercial museums connected with the universities of California and Philadelphia, and there were many on the Continent, the principal one being in Brussels. The question of commercial museums was, of course, connected with the question of commercial education—the economic side of geography—and when they recollected that there had been a commercial school in Leipzig for nearly seventy years they got some idea of the extent to which we were behind in such matters. But he really believed that if they could have an exhibit in England of all the different forms of education which were being developed, they would find that there was a great deal more going on than they anticipated, and that it could be organised and made very effective in a very short time. He believed that if the attention of the nation could be concentrated on this question they could go ahead at much greater speed.

After the examination of the museum by the members present, light refreshments were served. A hearty vote of thanks to Mr. Nuttall for his services concluded a very interesting and pleasant function.

The 569th Meeting of the Society was held in the Library, on Tuesday, March 19th, 1901, at 7-30 p.m. In the chair, Mr. J. H. LEWIS.

The Minutes of the previous meetings were read and approved.

The election of the following members was announced:—

ORDINARY.—Mrs. Rylands, Mr. Lawrence Pilkington.

The following presentations were announced:—

Presented by the Manager of the "Times":—Words and Things. The Century. Added to the Library:—Handbooks of Foreign Countries and British Colonies. London: Sampson, Low, and Company:—Denmark and Iceland. By E. C. Otté. Russia. By W. R. Morfill. Japan. By Samuel Mossman. Greece. By Lewis Sergeant. Austria-Hungary. By David Kay. Peru. By Sir Clements R. Markham. Spain. By Rev. Wentworth Webster. Sweden and Norway. By Rev. F. H. Woods.

Germany. By S. Baring Gould. Presented by Mr. Ed. Sutton:—*Smithsonian Report*. 15 vols. 1888 to 1894. Presented by "*Trade Journal Review*":—"Trade Journal Review." Map of the World, showing British Possessions. Presented by Messrs. Longmans, Green, and Company:—*Egypt and the Hinterland*. By F. W. Fuller. Frontispiece and maps. 334 pages and index. Price 10s. 6d. net.

Mr. L. Woods, of London, addressed the Society on "Belgium: What it is Like; How to See It; and How to Get There." He illustrated his address with a large number of lantern views.

Many questions were asked, to which Mr. Woods replied, and a very hearty vote of thanks was tendered to Mr. Woods for his very interesting address.

Mr. Woods responded.

A large quantity of literature dealing with Belgium was distributed amongst the members.

The 570th Meeting of the Society was held in the Library, on Tuesday, March 26th, 1901, at 7-30 p.m. In the chair, Mr. J. H. Lewis.

The Minutes of the previous meeting were read and approved.

Mr. ROBERT STEWART addressed the Society on a journey made through Devon on bicycles for about 300 miles, and exhibited a large number of slides, made from photographs taken by himself and Mr. James Wilde during the journey.

The address was most interesting, particularly to members who had travelled in the county.

Questions relating to the roads, accommodation, cost, scenery, and weather were asked, to which Mr. Stewart replied.

Very hearty thanks were given to Mr. Stewart and Mr. Wilde for the great trouble they had been put to for the purpose of giving the members a graphic account of the journey, and to Mr. Stewart for his interesting address.

Mr. STEWART responded.

The 571st Meeting of the Society was held in the Library, on Tuesday, April 3rd, 1901, at 7-30 p.m. In the chair, Mr. MARK L. SYKES.

The Minutes of the previous meeting were read and approved.

The election of the following members was announced:—

ORDINARY.—Mr. William Lee, Mr. Thomas Aitken, Mr. Edward Hulton, junr., Mr. Frederick E. Jackson, Mr. Robert Wilson, Mr. Thomas Gill, Mr. Hugh S. Greg, Mr. Charles Henry Benton, Mr. G. L. Hardeastle, Mr. W. Rundbaker.

LIFE.—Mr. W. Oswald Carver.

Presentations as follows were announced:—

Portraits of Members: Mr. Herman Woolley, F.R.G.S. Mr. John Snaddon. Sir W. H. Bailey, Kt., J.P.

THE LIBRARY.—Field-testing for Gold and Silver, by W. H. Merritt. Presented by the Publishers.

Presented by the Agent General of Queensland:—The Garden of Queensland (Darling Downs), with two maps, by George Essex Evans. Information relating to Queenstown and list of towns. Catalogue of Exhibits of Queensland, Earl's Court Exhibition, London, 1899. "Queenslander," August 5th, 1899, Rockhampton number.

Presented by Mr. Eli Sowerbutts:—Personal Experience in South Africa, by Thomas Newbigging.

Presented by Mr. E. Sutton:—Consular Report on Russian Railways.

Presented by T. N. Kelynaek, M.D.:—"The Courier" for Ragau, Pratigau, Davos, and the Engadine. 1899-1900. (A few numbers missing.)

Presented by Messrs. Henry Stevens, Son, and Stiles:—The Silver Map of the World, etc. Maps and illustrations.

THE MUSEUM.—Mendi Cows' Horns, mounted, from W. Vivian, F.R.G.S. Sample of Blister Steel: Messrs. John Brown and Company, Sheffield. Set of Knives, showing the course of manufacture: Messrs Atkinson, Sheffield.

MR. EDWARD W. COWAN, C.E., addressed the Society on "Across the Lapland Alps," and his address was illustrated with a fine set of slides, made from photographs taken by Mr. Cowan in his journey.

Several questions were asked, and replies given by Mr. Cowan.

THE CHAIRMAN moved that a hearty vote of thanks be passed to Mr. Cowan for his most interesting address.

MR. COWAN responded.

THE SOCIETY'S EXCURSIONS FOR 1901.

The 572nd Meeting of the Society was held in the Library, on Wednesday, April 17th, 1901, at 7-30 p.m.

This meeting was held to consider the question of excursions, and a long conversation ensued. A number of suggestions were made, and some of them were selected, and referred to the officers of the Society to be carried out when convenient.

The 573rd Meeting of the Society was held in Library, on Tuesday, April 23rd, 1901, at 7-30 p.m. In the chair, MR. J. HOWARD REED, one of the Honorary Secretaries.

MR. W. J. SINCLAIR, J.P., M.D., gave a most interesting and valuable address to the Society on his recent travels in the Southern States; he described the scenery on his journey down the Mississippi river to New Orleans, and some journeys he had made in the adjoining Cotton States. The difficult race question was vividly brought before the members, and a large number of slides, made from photographs taken on his journeys, very aptly illustrated the address. Maps were also freely used.

MR. SOUTHWOOD moved, and MR. BOSWORTH seconded, a very hearty vote of thanks to Dr. Sinclair for his admirable address. The motion was carried.

DR. SINCLAIR replied to some questions, and responded to the vote of thanks.

The 574th Meeting of the Society was held at the Corporation Tram Shed, in Queen's Road, Cheetham, on Thursday, April 25th, 1901, at 4 p.m.

Mr. JOHN GIBBONS, the architect of the building, guided the members. Mr. Gibbons having kindly invited members to inspect this building, which is now approaching completion, a number of members accepted the invitation.

The shed, which covers about five acres, is remarkable for the excellent light in every part, for the careful utilisation of the space, the beautiful simplicity of its construction, and its evident adaptability to the use for which it is intended. The shed will hold about 300 cars, and the arrangements made will enable them to be worked without confusion. In each car bay space has been left (a kind of open cellar), so that the under side of the cars may be easily got at for examination or repair. The members were pleased to see the various kinds of cars, and to be able to see how they are to be worked. Some of the cars not being finished, allowed an opportunity of examining the works. The offices, men's eating and waiting rooms, the horse stables, and other parts of the building were carefully examined, and the visit gave great pleasure to the members.

Mr. B. J. BELISHA moved a very hearty vote of thanks to Mr. Gibbons for his kind attention, and for the information given to the members.

Mr. J. D. WILDE seconded the resolution, and Mr. C. A. CLARKE and the SECRETARY supported it, and it was carried.

Mr. GIBBONS, in reply, said he had great pleasure in receiving the members to see this important station.

The 575th Meeting of the Society was held in the Library, on Monday, April 29th, 1901, at 7-30 p.m. In the chair, Mr. J. D. WILDE, M.A., one of the Honorary Secretaries.

The Minutes of the previous meetings were read and approved.

The following presentations were announced:—

Added to the Library:—The Riviera, Ancient and Modern. By Charles Lenthéric. London: T. Fisher Unwin. 1895. Journeys through France. By H. Taine. London: T. Fisher Unwin. 1897. The Land Beyond the Forest. By E. Gerard. 2 vols. London: Wm. Blackwood and Sons. 1888.

THE MUSEUM.

It was also announced that the new Commercial and Geographical Museum was open for inspection at the Society's House, St. Mary's Parsonage. Mr. H. Nuttall, Vice-Chairman, opened the room, which contains the "large collection" given to the Society by various members, the Imperial Institute, Sir J. Grinlington, Mr. George Thomas, and others, to form the foundation of a Geographical and Commercial Museum. The collection is one of unique interest, and is being constantly enlarged.

The following correspondence was laid before the meeting:—

Colonel C. M. Watson, Mr. John Snaddon, Mr. John P. Tomasson, Mr. F. Mertens, Belgian State Railway, Le Tour du Monde, Mr. J. J. Gleave, Mr. Edward Sutton, Mr. Alfred Hoyle, Miss S. Beatrice Squire, Messrs. Louis Steinberg and Company, Mr. F. J. Randall, Mr. H. Nuttall, F.R.G.S., Messrs. John Heywood, Mr. G. H. Warren, Mr. John Ainsworth, Mr. J. D. Wilde, M.A., Mr. A. Montefiore Brice, F.R.G.S., Messrs. Deau and Dawson.

Mr. R. W. Swallow, B.Sc., Messrs. Joseph Place and Sons Limited, Mr. J. Howard Hall, Dr. Sinclair, J.P., Mr. Richard John Gill, Mr. R. E. Brierley, Sub-Manager, Parr's Bank Limited, Mr. S. H. Brooks, F.R.G.S., Mr. C. Roeder, Mr. C. H. Bellamy, F.R.G.S., Mrs. Walker, Mr. H. Worthington, Mr. J. D. Ainsworth, Messrs. Dean and Dawson, Rev. S. A. Steinthal, Miss E. S. R. Williamson, Mr. Chas. J. Hurst, Mr. J. Gibbons, Mrs. E. A. Heywood, Mr. Jas. Wilde, Mr. Willis L. Moore, Mr. P. Maclean, Mr. W. B. Leech, Mr. E. Helm, Urnston Independent Methodist Society, Mr. Wm. Bowes, Mr. T. Connolly, Mr. A. J. Kennedy, F.R.G.S., Mr. Thos. Wrigley, Mrs. Newby, Mr. John R. Newby, Dr. R. Kœttlitz, Rev. J. W. Hayward, Mr. R. Hope Brown, Mr. W. Nelson Greenwood, Mr. E. Royle, Mr. R. Lamb, Mrs. Wakefield, Mr. Arthur Gulston, Rev. Thos. Wakefield, Mr. D. R. Calvert, Dr. T. N. Kelynaek, Mr. John Kelsall, Mr. A. Pendlebury, junr.

Mr. T. N. KELYNACK, M.D., addressed the Society upon "Some Health Resorts of Switzerland."

The subject of the address has long been a matter of study and of examination in Switzerland, and this address was most instructive and valuable. By the aid of maps, the places referred to were indicated, and with a fine set of slides the places were brought to the sight of the members.

Mr. J. HOWARD REED moved that a very hearty vote of thanks be given to Dr. Kelynaek for this important and interesting contribution to the knowledge of the members.

Mr. J. H. LEWIS seconded the motion, which was supported by Mr. SOUTHWOOD and the SECRETARY, and passed unanimously.

Dr. KELYNACK responded, replied to questions, and thanked the lantern demonstrator for the able way in which the slides had been exhibited.

THE ROCKIES AND CANADA. A Revised and Enlarged Edition of "Camping in the Canadian Rockies," with more than 40 Photogravures and other Illustrations, from Original Photographs by the Author. By WALTER DWIGHT WILCOX, F.R.G.S. Preface, Contents, List of Illustrations, Maps (in pocket at end), Appendix, and Index. 309pp. G. P. Putnam's Sons, New York and London. 1900. Price 15s. net.

THIS is a beautifully-printed volume of travel on a part of the Canadian Rockies—and only a very small part; but out of several journeyings to this district Mr. Wilcox has been able to obtain a considerable amount of pleasurable excitement and of adventure.

There is one most pathetic incident told in the course of the narrative, and the mountain work in these grand ranges is evidently fraught with so much danger as to give the needful fillip to the mountaineers. This story is well and pleasantly told, and, when read, will make a deep impression of the beauty of mountain lakes and tarns, of snow-covered heights, and great glacier fields; whilst in some aspects the savage grandeur of wind-swept, bare heights is almost overwhelming.

The book is divided into fifteen chapters, an appendix, and an index. The sportsman, the fisherman, the ethnologist, and botanist, as well as geographer, will find a good many things in this interesting volume to charm and instruct.

THE JOURNAL

OF THE

MANCHESTER GEOGRAPHICAL SOCIETY.

POLAR WORK: WHAT IT IS, WHY IT SHOULD BE DONE,
AND WHAT IS STILL TO BE DONE THERE, ETC.

[Addressed to the Members in the Coal Exchange, Wednesday, January 16th,
1901, at 7-30 p.m.]

BY DR. REGINALD KOETTLITZ.



DR. REGINALD KOETTLITZ.

NEVER be contented! Do not even wish to be! For an unsatisfied condition of mind, though consciously only vaguely realised by most people as the usual condition nowadays, and perhaps more rarely expressed in words, is nevertheless directly the origin and incentive

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which impels the world towards progress, is the stimulus which causes men to think, and is the fountain of the ambitions which result in consequent action!

The copy-book and theological dictum that "Contentment is great gain" is an exploded doctrine, and, though it is still taught, its meaning is unrealised by the individual teaching it.

How fortunate it is for society that it is so rarely followed, except, perhaps, by those whose mental capacities are dull and feeble, and who have not the stimulus of an active mind!!

Three great and dominant causes urge men towards exploration and investigation of the less known portions of the globe, and these causes hold good for the Polar regions also: restless non-content, ambition—often combined with patriotism—and the search after knowledge.

The large majority, in their restless non-content, for want of other opportunity, throw themselves into business, in the hope that in the turmoil and whirlpool of keen business competition they may, after a time, emerge from the struggle, head and shoulders above their fellows—and the bigger their banking account then is, the more the satisfaction; while society's measure of success is made and appreciated by what it knows upon this point.

Men of birth, professional men, the merchant, the soldier, the sailor, and the working-man all have their ambitions. To many, however, the ordinary ones are not sufficient. Thus the eagerness for active service, lately so plainly seen, the desire for shooting big and dangerous game and, generally, the thirst for adventure.

The Polar regions especially appeal to some, because of their relative inaccessibility, the difficulties and hardships attendant upon investigation there, the strangeness and novelty of the surroundings, so different to any other parts of the world, the desire to tread in the footsteps of heroes gone before, as well as to wrest from Nature the secrets she so jealously guards, and which have baffled so many attempts to gain them.

It ought to be especially, to my mind, the business of England—or I should say Great Britain—to be in the van in work of this kind. In times gone by she has always been to the forefront. Being *the* maritime power of the world, it is especially her province to prosecute this work. In the enterprise of the past she has achieved many glorious conquests, and greatly eclipsed those of other national competitors, should she be behind-hand now? At the beginning of a new century, when she is still the richest and most powerful of nations, should she not take the front place, as she did in the earlier years of the century now passed away? Why need we wait for the Government to move in the matter? For though it is especially a work in which the British Government has before, and might still, take the glorious lead, there are numerous individuals who could easily equip and send out expeditions to these regions, and there are also many men competent and willing to conduct such expeditions towards successful issues.

There are many croakers and people who take pessimistic views of Great Britain's tendency towards decadence just now, and, to my mind, perhaps the strongest reason which might be adduced towards evidence of this, is the tendency she shows towards calmly allowing other

nations to quietly take the lead in Polar investigation. Ought it not rather to spur and stimulate our prominent and wealthy men to do all in their power in order to prevent our dear and glorious old country from slipping behind, and not leading in this most honourable, most interesting, most enterprising, and most scientific work? Of course, we



DR. KETTLITZ IN ARCTIC DRESS.

applaud, admire, and have no jealousy for the work of the Norwegians and Swedes, with Nansen, Nordenskiöld, and André as heroic leaders, nor, also, can we do less than look with admiration upon that which has been and is being done by the Americans, in the persons of Greely, Lockwood, and Peary, with their gallant assistants; at the Italians, with the Duke of Abruzzi at their head. But, while we do this, should

we stop quietly at home and look on without showing the world that we still keep our place in the van of Polar exploration, and indeed of exploration anywhere? Certainly small expeditions have been sent out, but the leaders had no experience, were untrained, and therefore met with little success.

Polar exploration is not only scientific, but has often led to most important commercial results. Former expeditions in those regions have resulted in the most lucrative of trades and the employment of armies of workers. As instance the pursuit of whales and seals both in the North as well as in the South; "whalebone," or baleen, oil, skins, and furs of the most valuable kinds have been the products. As an instance in my own personal knowledge: The expedition of which I was a member—the Jackson-Harmsworth one—was the direct cause of a fleet of whalers visiting Franz Josef Land for the purpose of hunting the walrus which abound there, with the result that thousands of pounds' worth of money have been gathered from about these few desolate islands. The bicycle trade has led to this result: walrus skin is, I understand, largely used for burnishers, and because of the increased demand owing to the rapid increase of this trade a few years ago, the pursuit of this animal was prosecuted with much vigour, and a handsome profit made.

The problems which Polar investigations will help to solve are many. The geographical one is, of course, always a prominent one.

(1) How is the land and sea distributed there: that is, what proportion of the area, still unknown, is land and what proportion ocean? If land is there, what are the conditions, with respect to height above sea-level, as regards climate and weather, as to what proportion of its surface is covered by ice, and, if covered, to what depth? What proportion is uncovered? Theory upon such points has often been, most startlingly, proved to be erroneous; notably the condition of the interior of Grinnel Land.

What is the condition of the sea there? Is it always ice-covered; to what depths does it freeze? What are the temperatures in its depths, and what are the conditions in which its marine inhabitants live there?

What are the depths of the ocean and seas there? Here, again, theory has been startlingly contradicted by facts, the results of Nansen's late expedition, and in the South by the Belgians.

(2) One of the principal reasons why it is especially desired by scientists that a South Polar, or Antarctic, Expedition should be despatched is for the cause of elucidating the problem of terrestrial magnetism.

What is terrestrial magnetism? This can only very imperfectly indeed be answered. That it is some power, or manifestation of force, upon the earth which is exerted between two or more focuses, called poles, is known: that these magnetic poles are not the same as the geographical poles is also well known. That the magnetic poles are also not stationary, but moving in some manner, especially those in the South Polar regions, is known too. Also that every cycle of eleven years there are magnetic storms, that these storms are coincident with the period when the sun, the great orb which lights and warms us, and to which we all owe so much, develops its maximum number and size

of sun spots we also know, *but* the *why* and the *wherefore* of this is not understood, and it is hoped that by making a series of careful observations at, or near, the positions of these Southern poles, valuable information may be obtained which would guide us towards a better understanding of this mysterious force.

In connection with magnetism, we know that it has some strange connection with the beautiful, weird, and often gorgeous displays of Northern and Southern lights—the Aurora Borealis and Aurora Australis. What is that connection? In Polar regions thunder or lightning rarely occurs. Why? Are the Auroral displays, so common there, a similar, but changed, manifestation of force which, in tropical and temperate portions of the earth, shows itself in the form of lightning and thunder?



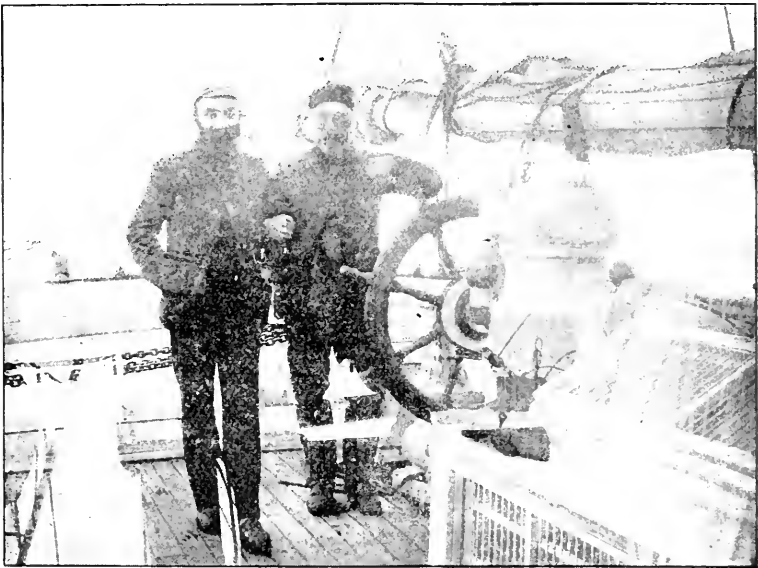
SETTLEMENT AT CAPE FLORA, TAKEN BY MOONLIGHT DURING THE ARCTIC NIGHT.

(3) In the South especially, but also in the North, the meteorological problems are numerous, and require investigations to elucidate. One of the commonest and most extraordinary facts which meteorologists cannot account for is why there should be, in the Southern Polar regions, an area, or possibly a belt or zone, covering an immense portion of the earth's surface, where the barometer always sinks, upon an average, an inch lower than at any other portion of the earth's surface at sea-level. This area, whenever it has been visited, has invariably been found to give these peculiar barometrical readings, so that it appears to be a permanent condition of things in this part of the world.

Why should this be so persistently so? Why should there be this permanent cyclonic condition there?

(4) Now, as to zoological problems. These again are endless; every Polar expedition brings home new animals, which are not known to science, and some of which always astonish the specialists who examine them.

The Polar regions are found often to contain the survivals of animals (as well as plants), the like of which have long died out upon other portions of the earth. Take, for instance, that peculiar animal—half sheep, half ox—which survives in the extreme north of the New World and Greenland, the musk ox. This animal once roamed over what is now temperate Europe, Asia, and America, but now it is quite confined to the extreme north of the continent of America, the North American Archipelago, and Greenland. A fine-grown animal, has the size of a



MR. W. S. BRUCE, OF ANTARCTIC FAME, AND CAPT. JAMES BROWN, SKIPPER OF THE WINDWARD, ON WINDWARD'S POOP.

small ox, is a long, shaggy-haired, and fierce-looking, but quiet and harmless beast, yet it has affinities which give it a close relationship with the sheep, and it is of interest to zoologists because it bridges the interval between these two kinds of animals; in fact, it is a (non-) "missing link"!

There are other animals of similar importance zoologically, and we may yet find others—who knows?

How anomalous are the birds we find in the South Polar regions—the curious penguins. These are especially interesting because, among many other interesting points, they, unlike other wingless, or non-flying birds, are the descendants of birds who never had the power

of flight. Every one knows that the young of animals, birds included (as well as the embryo seen in the egg), inform us as to the condition of development, etc., of the progenitors, and the stages which the animals forming the stock as it is at present constituted, passed through; by study of the penguin it is found, as already stated, that they are unique in the fact that their progenitors never developed wings for flight!

In the South, again, the known mammals are peculiar in several respects. They are all aquatic; true seals for the most part, are extraordinarily tame (so also, indeed, are the penguins), for they allow man to approach quite close to them without being disturbed. This points to their having no enemy, at least above water; all the enemies they need fear are under the water. That they have them we



BEACH OF CAPE GRANT.

With rounded ice boulders caused by swell during a storm. Coast and islands on the other side of Nightingale Sound in the background.

know, because of the fearful wounds some of them have upon them; the killer whale, or grampus, is supposed to be the principal enemy, but, no doubt, they are also each other's enemies. The penguins also have their enemies under water, for there the seals capture them and make them part of their food, yet above water seals and penguins may be seen close together basking upon the same piece of ice.

The whales which inhabit the Antarctic waters are not thoroughly known; as to whether the Right, or Greenland, whale, so valuable for its "whalebone," or baleen, is there in any numbers is a point about which information is needed.

In the North there are several birds which are most rare, and have been only occasionally observed or obtained by explorers, while their

breeding-places, habits, and life histories are practically unknown. Ross's gull, Sabine's gull, etc., are instances in this respect. The unknown minute animals are probably legion. A point about the land animals in the North—where there are comparatively many, for there are musk ox, reindeer, Arctic fox, hare, wolf, ermine, glutton, lemming, etc., thus so different from the South—is their colours. These including the birds, may be divided into two classes: (1) Those more especially adapted for fine weather; and (2) those for dull and misty conditions, though neither are exactly unsuited for each. The colours they are dressed in serve two purposes, but in each case for concealment. In the cases of the larger and carnivorous animals it tends to enable them to steal upon their prey without being so easily observed by them; in the smaller it helps them to conceal themselves from the observation of their enemies. The bear, therefore, is white; is whitest in the winter and spring, but in the summer, when also the coat is changing, it is ragged and yellowish. The snow and ice in the winter and spring is, of course, clean and white, because newly-fallen; during the summer, however, the thaw exposes any dust particles, diatoms, or algae which happen to be caught in, or deposited in, the snow and ice; these becoming increasingly visible cause the snow and ice to look yellowish and dirty; hence the colour of the bear's coat in each season is thus better adapted for concealment. The Arctic fox, generally white in winter, piebald and blue in the summer, inhabits rocks; therefore in winter, when the rocks are covered with snow and ice, and in the summer, when only flecked with or bare of snow, these foxes are easily concealed.

Similar conditions help some of the other animals.

The principal and more common birds, of which only one is quite white in plumage all the year round (the ivory gull), have, for the most part, black and white, lavender or French-grey and white, or grey to light slate coloured plumage. Their principal enemy is the fox, who preys upon them when they go to the rocks, for nesting purposes, or to roost. The rocks are generally dark in colour, especially when damp; and upon the ledges, in the cracks and crevices, snow lingers all the short summer, so that the black and white birds are extraordinarily concealed while sitting upon them, even in the brightest and most brilliant of sunshine. But the grey and white and grey birds, how beautifully their plumage conceals them during misty and foggy weather, of which the Arctic has so great a share! So that both when flying or when sitting upon the ice they are practically invisible, and especially so when flying over water, and when upon the water, also when the atmosphere is not foggy, but the sky is only covered with leaden clouds.

There are many other interesting points as to how beautifully Arctic fauna (and flora) are adapted to their environment, but space will not allow me to enlarge further.

One point I should, however, like to make a remark upon in passing. It is that although many of the Arctic mammals and birds are certainly white, or have portions of their coat white, this white is not quite the colour of the white of the snow. Apparently Nature will not allow natural selection to *exactly* imitate this colour, for, upon careful comparison, one can easily see that the white of the animals is distinctly

ivory or yellow-white, while that of snow or ice has always, when pure, a tinge of blue in it! How is this?

(5) Now, as regards botanical questions. The South is practically unknown, for next to nothing botanical—except marine, and that little—has ever been investigated there. Much is hoped for from this part of the world, if not in recent plants, at least from fossil ones, but probably both will yield important results, especially as to the means by which the flora (and fauna) of the Southern continents and islands have been distributed or spread from place to place.

The similarity of some of these in all three great Southern temperate regions has struck naturalists as highly peculiar. For instance, take a striking zoological case: Australia, New Zealand, Africa, and South America are each the home of peculiar wingless running birds, similar to each other, some of which are the emu, cassowary, ostrich, and the rheas (there are also many extinct species). Again, all these Southern portions of the world have, or had until recently, examples of the low form of mammal—so conspicuous in the kangaroo of Australia—marsupials.

There are many similar resemblances in both plants and animals of the three places. How is it that there should be this similarity? Has it anything to do with the distribution of life over the globe by means of the Antarctic land? Will the Antarctic give us a clue? All these are questions the expeditions to the South may answer.

In the North are, again, survivals in flora in the same way as in the fauna. For instance, one sedge discovered first by the botanist of one of Parry's expeditions in search of the North-west passage, upon Melville Island, of the North American group (by name *Pleuropogon Sabinii*), and which since then has been found upon the Arctic shores of Siberia, at Nova Zemlia, and in Franz Josef Land; it is found nowhere else in the world. This plant is unique in that it is the only truly endemic Arctic plant in existence, for all the others are found elsewhere, and it represents a survival of a form of plant once widely distributed in geological ages gone by, but now only found as a fossil!

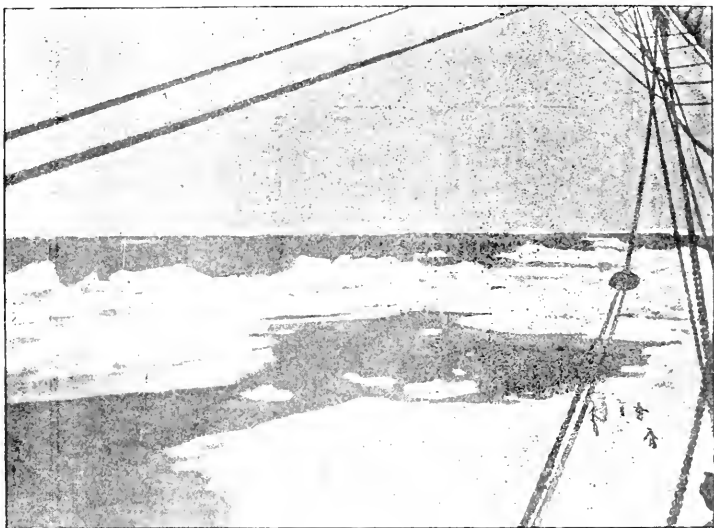
(6) Geological problems. As already suggested, they include this question of distribution of life upon the globe, for fossils, or survivals there, may tell us how this came about. There are many others. Among them I may mention: Has there been in the Antarctic similar changed conditions, as regards the former climates there, as there is ample evidence to prove that the North Polar regions have passed through? I need not tell you that upon the most Northern lands the foot of man has ever trod upon fossils have shown that portions of the North Polar area have been, in ages gone by, under semi-tropical, sub-temperate, temperate, and sub-Arctic conditions. Take, for instance, an example from my own personal experience again. At the present time trees do not extend further north in Europe and Asia, as well as in America, than some distance south of the shore of the Arctic Ocean—roughly, about 70 deg. north. Well, I have proved that in late jurassic and early cretaceous times forests existed; bushes, ferns, and other vegetation, which does not extend nearly so far north now, flourished luxuriantly in Franz Josef Land, which is 80 deg. north latitude, or between 600 and 1,000 miles further north. This proves that the

climate was at least sub-Arctic there then and not Arctic; in other parts it has been shown to have been sub-tropical about there.

Other problems for geologists are: Has the earth ever changed its centre of gravity and revolved upon a different axis to the present one?

The conditions of glaciation and all their phenomena are there open for their study.

In the Antarctic especially the land is covered with ice, probably miles in vertical thickness, so that it covers the mountain tops—even the highest—in the interior, in a similar manner to Greenland inland ice, and, being more glaciated than any country north, may give clues to some of the puzzling phenomena with which geologists are familiar and cannot quite understand yet.



Photograph by W. S. Bruce.

ANTARCTIC.—PACK ICE SEPARATED OUT IN A CALM; PENGUINS IN FOREGROUND.

(By permission of Mr. W. S. Bruce.)

What effect upon the underlying land has this enormous mass and weight of ice? What are the results of this stupendous action of force?

Again, the ice covering the land, we know, is never stationary, how does it move—at what velocity? What is the temperature, is it constant? And what are the physical conditions of the ice, in its depths, etc.?

Indeed there are numerous problems which can best be studied there, and the better we understand them the more perfectly we shall comprehend the conditions which produced the geological results of the last glacial period.

What are the nature of the different rocks, are there any which bear within them valuable or precious metals?

These are a few of the scientific questions which Polar investigation seeks to find the answers for. There are numbers of others. The

South, which has been least visited, and, therefore, is far more unknown than the North, offers the larger number and most interesting for solution.

And, though these are scientific questions, commercial results may follow, as they so frequently have done in times gone by, and do every day yet. Most lucrative whale fisheries, seal hunting, and mining have been results in the North already; seal hunting, to an enormous extent, has also been one result in the South; so also has whale fishing; but, among other things commercial which might follow, are possibilities as to making use of the rich guano deposits there, and (who knows?) even gold and other valuable minerals may be found, rich enough and in sufficient quantities as to open a way to new and important enterprises.



Photograph by W. S. Bruce.

ANTARCTIC.—STREAM OF PACK ICE DRIVEN TOGETHER BY GALE.

(By permission of Mr. W. S. Bruce.)

How can I, or indeed any one, describe to you the charm of the Arctic? A man must be a poet, an artist, and a musician all in one to be able to give an even imperfect idea as to its strangeness, its beauty, and its grandeur.

Civilisation and its worries, its cares, its hollowness and show, its rush and turmoil, is all left behind. Now the battle is against Nature alone, but not infrequently in all its might. It can be successfully battled with, but one must be ready. Nature, however, though so mighty here, nevertheless shows itself with most smiling face sometimes. A perfect spring or summer Arctic day, or even a bright moonlight Arctic winter day is simply and most perfectly beautiful. Take a spring day. The sun rises in the south-east, but before doing so it pauses long below the horizon, and during that pause sheds over the

light clouds and vapours in the sky a twilight which assumes the most delicately soft and delicious tints of greys, mauves, purples, pinks, rose colour, to lake and golden. Not only is the sky thus bathed in lovely colours, but so also is the ice on the sea, in all its fantastic forms; the snow and snow-covered, as well as ice-frosted, rocks; the high glacier-covered land, as well as all the distant land thirty and forty miles away, for the clear air allows such distant view. To see the frosted, snow-covered rocks, ice-covered land, and all one's surroundings bathed in these delicate greys, pinks, and purples is indescribably—almost supernaturally—beautiful. Soon the glorious sun appears above the horizon, the colours quickly change through almost all the colours of the rainbow, and after a time everything takes its perhaps most natural aspect—that of a sparkling, dazzlingly pure, delicate blue-white; for, let me tell you, snow is not white—any one who has seen it perfectly pure, such as can be seen only in the Polar regions, will tell you that there is a lovely azure blue in it. Only look into a small, cavernous space left in a snowdrift, and produced by an eddy, and you will quickly become satisfied that there is blue in it. The tumbled masses of ice, the pencilling of the rocks, and the contour of the land around is all mantled in this beautiful covering, which is more startlingly shown up by the glorious steel-blue of the sky above—perhaps bluer by contrast with the apparent whiteness around. Such a sky rivals, if it does not eclipse, the blue of the tropics: I have visited both parts of the world, and I must say the tropical does not come up to the Arctic sky in beauty and vividness of colouring. The nearest approach, if anywhere, is in the desert, among conditions the very opposite. Then upon a summer day to be sailing among the ice pack is to pass through a fairyland: whichever way you turn your delighted gaze is met with wonderful things in shape and colour on every side, for the ice, broken and pressed into all shapes and sizes by the storms of often more than one winter, assumes the most fantastic forms, and the warmer water in which it floats also acting upon it by thaw, changes its centre of gravity and causes it to capsize and show its under surface, which then is seen to have been most extraordinarily and irregularly acted upon. These fantastic forms, having had their corners and sharpnesses softened by coverings of pure snow, make the scene in which one is wandering a picture never to be forgotten. The sea among which this floats is compelled to assume the calmness of a mill pond, because the ponderous masses of ice floating upon it do not allow the ocean swell to act upon it. Hence it is as smooth as a mirror, as clear as glass, and as blue as the sky above, and this, combined with the beautiful forms in all shades of blue, tender green, to white, increases the delicate beauty of the picture.

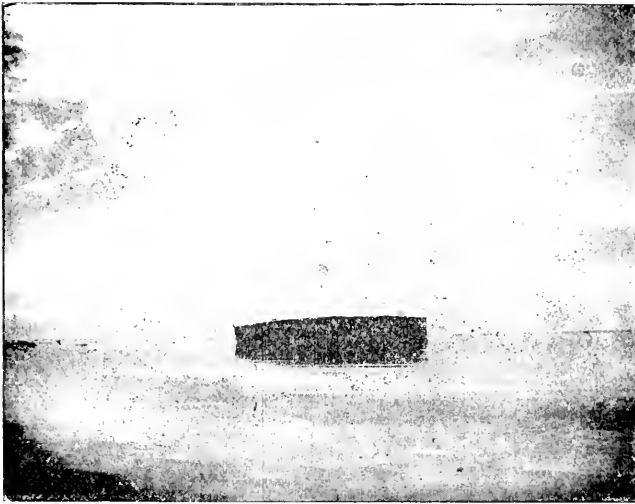
Now, how about the land, which people who have never seen it imagine to be only an ice-covered picture of desolation? They are wrong—entirely, unmistakably wrong.

The rocks with a southerly face are the homes of hundreds of thousands of birds (divers and gulls), who get their livelihood from the sea, and their incessant noise and continual chatter reminds one, when at a distance, of that of children when rushing out of school. These rocks are not only peopled by birds, but are sprinkled all over with lichens—red, white, grey, and black—which prick them with often

beautiful colouring. Lower down, on the banks below, in sheltered and well-watered nooks, one often comes across a garden of flowers. Arctic poppies, buttercups, saxifrages, drabas, and many other plants are blooming in undisturbed grandeur, while mosses in all colours, from delicate spring greens, through darker greens, to rose colour, purples and browns, with grasses, carpet the ground all around.

Needless to say there are many barren spots: yet even they are never quite barren, never so barren as the tropical desert.

On these calm summer days, except for the noise of the birds (among which I must not forget the ubiquitous Arctic favourite, whose twittering song is so dear to the sojourner in these parts, the pretty little snow-bunting, as well as numbers of other smaller birds, which make the lower land their summer home), the stillness of everything is



FLAT-TOPPED ICEBERG FLOATING IN OPEN WATER IN BARENTZ SEA.

extraordinary. But when in the winter, during the long Polar night, a "DAY" like this comes round, the stillness is indescribable, and is rarely broken, except, perhaps, that in the distance one hears the weird, unearthly squeals, whistles, and shrieks of the ice pressure, caused by the tide far out to sea, and the occasional bellow, or chorus of bellows, of the walrus playing about in the distant cracks and openings in the ice.

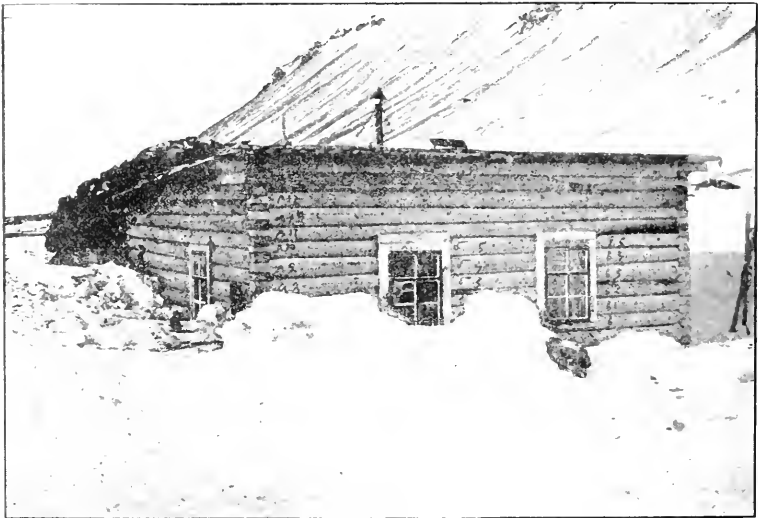
But in the autumn, when the birds are gone, and the country is putting on its winter mantle, then things *do* look desolate sometimes, and the iron-bound coast, now being quickly cut off from communication with the rest of the world, by the ice being rapidly formed in the sea all around, does form a picture of wildness, inhospitability, and horrid desolation, which almost compels the dweller there to reflect how terrible

his life and end would be were he unprepared with food, furs, and shelter for the deadly cold and darkness of the long winter night.



ATTAINMENT—FLYING THE "JACK" ON LAND NEVER BEFORE VISITED BY MAN.

This long winter night is the bugbear and horror of the Polar explorer; it is not the cold, for he soon gets used to it. The dreary monotony, darkness, and length of it—if he has already experienced



JACKSON-HARMSWORTH EXPEDITION DWELLING AT CAPE FLORA, FRANZ JOSEF LAND.

one such night, causes him to shrink with a great loathing from the near approach of another. The darkness, being even at mid-day as

profound as at midnight, prevents him from being able to take more than a most groping form of daily exercise, and then it is that he looks forward most eagerly for each return of the moon, whose advent is a source of comfort and gladness. And it is needless for me to try and describe how eagerly and longingly he looks for the signs of the return of the life-giving sun after the longest day of the winter—the 22nd of December—is past.

Yet I might almost say that he is compensated for it by the long summer day when it does at last arrive once more. To you, no doubt, it sounds strange for me to tell you how we used to bask in the sun at



OUR NURSELING—SMALL POLAR BEAR CUB AND HIS NURSE.

midnight, and how that frequently, when travelling by boat or sledge, we did not trouble as to whether we arose from sleep at 6 p.m., 10 p.m., or at noon; so that we often, just in the same way as Nansen did just before he met us, had our breakfast at eight in the evening, our lunch at two in the morning, and our dinner at 9 a.m. or 10 a.m.

These peculiarities of the seasons appear very strange to us when we are at home, but the strangeness soon wears off after a year's sojourn in these lands.

I am not exaggerating when I say that animal life swarms in the Arctic as well as in the Antarctic. It is true that when the winter

darkness approaches all animals that have wings—at least, the birds—and in the Antarctic even those which have only the most imperfect of wings, make their way south or north, as the case may be. But although life is then not so much in evidence, it is still swarming around. The sea is full of crustaceæ, echinoderms, worms, fish, and other animals; if we knocked off and picked up a piece of frozen soil or turf and took it in the warm to thaw, it was soon seen to be filled with living things, and, of course, the plants remain and live through the terribly severe winter.

But still in the North the seals, the walrus, the Polar bear, the reindeer, the lemming, and the Arctic fox, etc., remain; the seals also do the same in the South. So that when wintering in the North, while out for a stroll, it was not at all an uncommon thing to meet with a



BRUIN UPON SLEDGE BROUGHT TO THE SHIP TO BE SKINNED.

bear also out for a stroll, and therefore it was a necessity almost to always go out armed—at least in Franz Josef Land. This is not necessary in Antarctic regions, for there no dangerous land animal exists.

To people who have not had the good fortune to know it from their own experience, the question will often arise—What is living in the high North—among such cold, bleak, and desolate surroundings—like? I will try, therefore, to give some slight idea.

When living in a hut, or upon a ship (which, of course, is stationary, like a house, for it is rigidly frozen into the sea surface), except for the space available being much more curtailed than at home, it is not so very different inside to what it is here; with the fire always burning, cooking, sleeping, and washing can easily be done just as at home, for the temperature inside of the ship or hut which has been properly pre-

pared, can be kept perfectly comfortable, though about the floor it is sometimes fairly cold; for instance, I have taken the temperature close to the floor and found it about freezing point, while five feet above the floor it was over 70 deg. Fahr. Water has always to be got by melting ice or snow. The difference is when one goes out, for then one often experiences a change of from 110 deg. to 120 deg. Fahr., for with a temperature of 70 deg. indoors and minus 40 deg. to minus 50 deg. outside, the difference is unmistakably felt, yet, if care is taken to clothe properly one is not unduly incommoded by it.

It is when upon a sledge journey that the greatest contrasts are, however, seen and felt. No doubt you are well aware that all fuel used upon a sledge journey has to be taken with us, also that the fuel is a downright necessity, though not, as perhaps you suppose, for warming ourselves by, nor especially to cook our food, for we might take it with us ready cooked, but in order to get something to drink! Our furs, our exercise, keep us warm, we can thaw our food in our pockets, or upon our breasts, or else eat it frozen, but we cannot place the ice at low temperatures into our mouths, or it would blister them; we must light our lamps and thaw ice and snow for the purpose of assuaging our thirst, which is often excessive. As, however, we have the fuel, and hot food and drink is a great comfort in the cold, we do use it also for cooking and heating our food, much of which is uncooked. This fuel must be the lightest, the least bulky, and the most economical obtainable; therefore alcohol or petroleum is the fuel generally taken. This we light in a carefully constructed lamp, placed in a carefully closed-up stove, and by covering the stove up with wool, fur, or other non-conductor of heat, we can soon manage to get our breakfasts or dinners cooked. But as fuel means weight, and by the decrease of all weights which have to be taken the more the food which can be transported with us, and so the length of the journey increased, we cannot afford to use fuel for anything else, even for drying our wet socks, and furs, etc., The socks, which we must change every day, we have to dry in our trousers' pockets, or upon our breasts, inside our shirts. The frost, so profound, produces very queer conditions in the food; for instance, fresh or minced meat can only be cut up by means of a hatchet or saw. A hatchet being the speedier, we always used this implement, therefore chips of meat often flew in all directions. Syrup is too toughly frozen to be used at all; bread is full of ice particles; cheese is crumbled up into corny grains mixed with iced spicules; moist sugar can only be broken up with much waste and difficulty; jam is frozen too hard for use, being very tough; bacon can be cut with a knife like leather, if there is not much lean in it—the lean is too hard to cut in this way; butter comes off in hard chips; ham has to be cut up with a hatchet; wine is thick with ice spicules or quite frozen; whisky is milky, and pours out like cream; tobacco breaks up into fine powder, like snuff (while the pipe tube will generally freeze up unless one continually draws at it, and afterwards keeps it in a warm place about one's person).

While on the march we do not use furs (except upon the hands and feet), and fur clothing is only used when stopping for lunch and when in camp. These furs are of very thick young reindeer skins, taken when the animals have put on their new winter coats, and in these one

can keep perfectly warm in any weather. After a little while, however, when travelling in the high North, because of not being able to dry them, they become moist through perspiration, etc.; this moisture causes them to freeze hard every time they are taken off, so that each day it becomes increasingly difficult to get them on; indeed, after two or three or more weeks they become so hard and stiff, if the temperature remains low, that it is only by long wriggling and the heat of the body acting upon them so as to partially thaw them that one can, after half an hour's or more trouble at last get into them, and all the time this process is going on, of course, one is miserably cold. Once on, however, all is well, and one can eat and sleep in comfort.

A thin, light silk tent, only large enough for the members of the sledging party to lie down in, is all the shelter one has, and even this is dispensed with by some explorers, but it is, to my mind, if of a good pattern, almost indispensable, if only to keep the snowdrift from getting into and thus wetting one's furs still more.

There are great differences between the North Polar regions and the South.

(1) The mean temperature in the South is probably considerably lower than in the North, because it is in a more glaciated condition.

(2) The North is an area mostly covered by ocean, which is surrounded by continental land. This ocean has in places islands dotted and grouped about it, especially in the western portion. The South Polar regions, however, are almost certainly in an exactly opposite condition, the pole itself, and for more than 10 deg. round it, being land, probably a continent. This is entirely surrounded by one of the largest and most continuous of oceans. Naturally such conditions also tend to cause it to become more glaciated, because the evaporation of this ocean produces a great amount of moisture, much of which is deposited upon this large area of land, and there it accumulates, because the clouds, so persistent in that part of the world, prevent the sun's heat from acting much upon it.

On account of these conditions—oceanic surroundings, more glaciated state, non-proximity of other lands, which are distant, and lowness of mean temperature—the South Polar regions are probably considerably different, more desolate and dreary than the North Polar, and the forms of life, through such different environment, may give us many more most interesting contrasts.

The comparative nearness and easier accessibility of the Arctic is largely the cause of the much fuller knowledge we have of that portion of the world's surface than we have of the Antarctic.

Expedition after expedition has been despatched by Governments, and by private bodies and persons, into the Arctic for several centuries, but those sent into the Antarctic may almost be counted on the fingers; indeed, if it were not for trading or commercial expeditions into Antarctic waters they might almost be counted upon the fingers of one hand, so that, in consequence, a vastly greater area and enormously more scientifically, is known of the North than of the South. Thus there is infinitely more work to be done in the South than in the North in order to gain similar knowledge of it.

What is the good of it? is a question one frequently is asked. Such a question is a thoughtless one, for a similar question can be asked about

many things which one sees fit to question—such as, what is the good of knowing what the sun is made of, how it retains its heat; what kind of bodies the planets are; what conditions were the cause of the formation of coal, the same of chalk. Numberless are the questions which might, with just as much reason, be asked. I will answer this question by another. *Does any one here doubt but that knowledge is a good thing?* Who can know too much? Such a thing is impossible; and the more any one knows, what does it teach him? Only how little he does know! The people who know very little are those that think much of what they know, and also are fond of talking about “useless knowledge.” Knowledge is power—gives life a keener interest and enjoyment—is production and money when rightly made use of.

Again, at the beginning of the twentieth century is it not time that we knew what the surface of the globe we inhabit is like—*all over it?* Is it not time to know how all of it is peopled (when I say peopled, I mean in its widest sense), what its conditions are, of climate, and in what way the other terrestrial forces, such as geological, volcanic, and magnetic, act upon it?

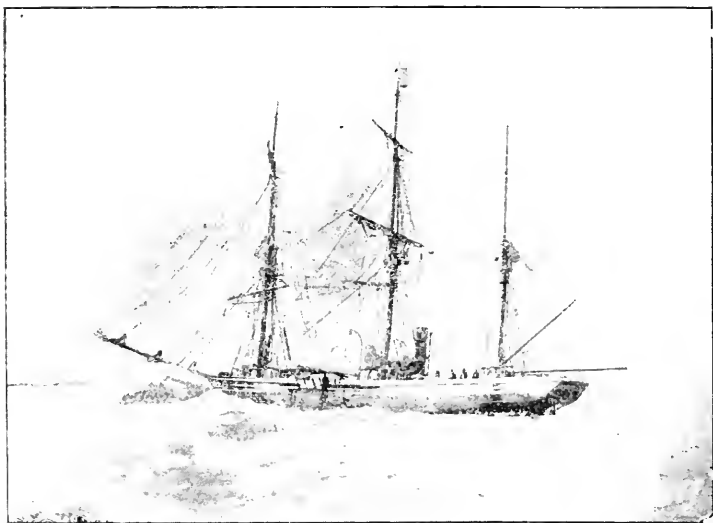
Should we not at least know how much or how little is covered by ocean, and how much is dry land?

We are gradually letting in the light of knowledge upon the problems of the North Polar regions, but we know so little about the Southern. It is a great and profound reflection to remember that in all probability there is a mass of land, of continental proportions, still almost absolutely unknown, much greater, in point of size, than Australia.

The motives which originally urged men and Governments to send out Arctic expeditions were mainly commercial, principally in order to find a sea route to India, and thus avoid the attacks of the maritime powers of that day—those of Spain and Portugal. Later this was largely outweighed by it becoming a national enterprise, a matter of national honour, to solve the questions of the North-west and North-east passages. Now, however, the motives are mainly scientific; true there is still something of the nature of a sport about it, a kind of race to “beat the record,” especially to beat that of another country about it, yet the principal object is the search after knowledge, the eagerness felt by most to solve the hidden problems which surround us. It is a good deal of the same nature as that of the quiet investigator in the laboratory and in the observatory. In this investigation who is to say what commercial use may not be the outcome of it; for instance, who could have foreseen that the search after quite another object should have produced such a startling, unthought-of, and useful result as that of the Röntgen or X rays and the skiagraph? Who would have thought that when the investigator, in his laboratory, discovered the process whereby air could be made into a liquid, the commercial man should at once seize upon the process, and by its means manufacture oxygen so much cheaper than before that he could make a great commercial success of it?

Hundreds of examples could be given in which the results of the explorer and the scientific investigator, though undreamt of at first, have become great commercial successes, and of incalculable benefit to mankind.

With such knowledge and experience before us, therefore, is it not the duty of every centre of education and commerce to take their part in promoting exploration and research wherever it can be undertaken. A centre like Manchester, teeming with population, with its own university, its grand museums and libraries, schools, and other means of education; with its wealth, opportunities, and enterprise, should therefore come to the fore and take its place in forwarding and promoting research, especially geographical. Might I suggest that there is a geographical feat well worthy of Manchester's attention? A feat which all the efforts of three centuries of men, from Baffin until now, have been unable, after repeated, gallant, and persistent efforts, to perform, a feat, the attempts to gain which absorbed the attention of the world, and produced a great outlay of Great Britain's money, especially



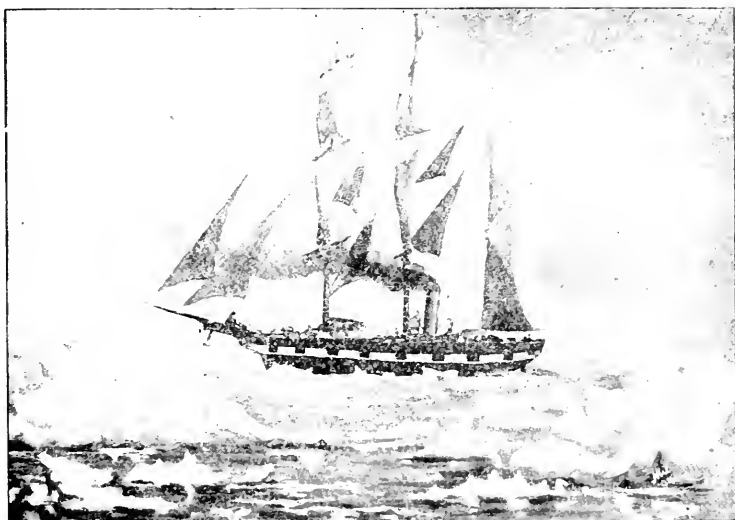
THE WINDWARD IMPRISONED IN THE ICE.

during the first half of the century just left behind. I speak of the making of the *North-west* passage; for though we know there is a navigable waterway, and that McClure's Expedition traversed it by sledge journey in 1852, as well as that the Government paid him the £10,000 that were offered to the successful man, it nevertheless is a fact that it has never yet been done by a ship (for McClure left his vessel behind, stuck fast in the ice). But in those days sailing ships alone were used in the attempts: steam has never been used; but now that we know how useful steam is in ice navigation, and how what could not be attempted in the time of the old sailing ship can now, by the means of steam, be done with ease, is it not high time that the attempt should once more be made, and should it not be a matter of national honour that it should

still be Great Britain's task to do it, so that no other rival nation should be allowed to take the honour from her!

If we do not do this soon some other nation will undoubtedly step in and do it—like the Swedes attempted, and did— with the North-east passage in 1879, under the leadership of the gallant *Nordenskiöld*. That it can be done is practically certain, and I have no doubt that it would have been done long ago had steam been tried for the purpose.

I remember that, when conversing with Dr. Nansen, when he was living with us in Franz Josef Land, the subject of the North-west passage cropped up, and he spoke strongly upon the point that, after the amount of labour, lives, and money Great Britain has expended over the enterprise, hers is the task to bring it to a successful result.

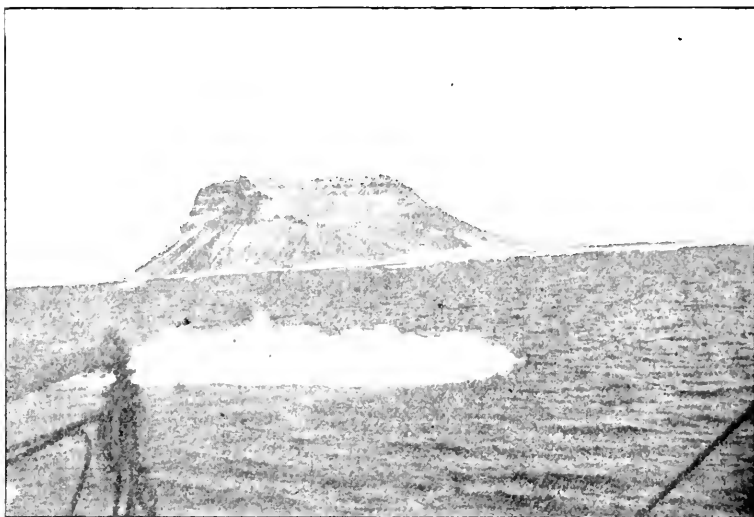


S.S. WINDWARD IN ICE FLOE.

Why should not Manchester step in, take up the task, and gain the glory of at last accomplishing it?

This task, if an expedition undertook it, would, of course, include the investigation, more fully than in times gone by, of all lands passed on the way, with complete records in the form of scientific observations in every branch of science. For this there would be no difficulty in finding a leader competent and willing to undertake it; I could name several men of experience, without counting myself, who would be only too ready to do so. What, therefore, is wanted is that some of Manchester's wealthy citizens should come forward with the sinews of war, for *that* and time is all that is needed for all the problems of the North, even that of the North Pole itself: for four years and £80,000, or even less, would solve the problem of the Pole almost without a doubt.

I must not forget, however, that at the present time an undertaking, of national importance, is in preparation, in the form of the forthcoming National Antarctic Expeditions. There is also another British Antarctic Expedition in preparation, the Scottish one under Sir W. S. Bruce. We hope by means of these expeditions many of the problems of the South Polar regions will have much light thrown upon them, and many new, extraordinary, and interesting facts be given to the world. The possible usefulness of the larger, indeed both expeditions, is, however, somewhat curtailed for want of funds, so that, although it was hoped that three years of work might have been the result, under the present condition of finances it is feared that this will be impossible ;



BELLE ISLAND, FRANZ JOSEF LAND TEN MILES DISTANT.

it would therefore be a most patriotic act for any one to come forward to help on so important a national enterprise.

Let me, therefore, urge upon the people of Manchester to bear in mind how important in every way Polar investigation is, and to help on, by every means in their power, the furtherance of this interesting and useful work. Let them remember the records of such men as James Ross, Parry, McClintock, Markham, and many others, and it will fire their patriotic ambition, and cause them to make up their minds that Great Britain must in honour keep up this record, that it is her bounden duty to follow up the work and researches of those gallant men who have gone before.

THE SNOWY RANGES OF AUSTRALIA, MOUNT KOSCIUSKO AND ITS OBSERVATORY.

By MR. CLEMENT WRAGGE, F.R.G.S., F.R.Met.Soc., F.R.C.I., etc., Government Meteorologist of Queensland, Director of the Chief Weather Bureau, Brisbane.

[Addressed to the Society, in the Library, December 11th, 1900, during the occasion of Mr. Wragge's visit to Europe to attend the International Meteorological Conference at Paris, as reported.]

ANYONE with a thirst for condensed information should read, mark, learn, and inwardly digest the review of Mr. Wragge's lecture on Weather Forecasting, the work of the Chief Weather Bureau, Brisbane, and the establishment of a new observatory on the summit of Mount Kosciusko in the Australian Alps, delivered in December, 1900, before the Manchester Geographical Society, as specially reported. The lecture was similar to one delivered by that gentleman at Cooma in New South Wales, which was published in "Wragge's Australasian Weather Guide and Almanac for Land and Sea," 1901. It would seem almost easy to create a Garden of Eden on Mr. Wragge's remarks, and as he rings the changes on Theosophy and clothes lines, science and paling fences, surely we shall each and all find a little instruction on pet subjects and theories.

Mr. Wragge commenced his lecture by throwing on the screen a picture of the Union Jack, and said he never commenced a lecture without doing so, for it was a flag to inspire enthusiasm and induce deeds of heroism. At this momentous juncture in the history of the Empire that flag was enough to make a Britisher's blood tingle with the fire of patriotism from the crown of his head down to the very soles of his feet. "The Jack," he said, "always reminded one of Nelson—'England expects that every man will do his duty,'" and, added the lecturer, "I never undertake a long trip or any arduous work but I carry the 'Jack' with me. It points to honour, to bravery, to a high standard of excellence, to all, in fact, that is good and noble in the human race, and acts as the most powerful stimulant in times of doubt and danger." The Chief Weather Bureau at Brisbane, controlled by him, always strives to do its duty to every section of the community utterly irrespective of praise or blame.

Mr. Wragge then spoke of the difference between astronomical and meteorological work, and explained how the various branches

of science dovetailed one into the other. But if one would succeed in any special line as a profession one must apply the principle of concentration or singleness of aim. Yet for the scientist to maintain an "even keel" was of the first importance, and hence it was necessary to take up other subjects as recreations, as he did astronomy, botany, geology, and kindred subjects. For the scientist of all others should have wide sympathies, and take a broad sweep of the marvels of the Cosmos. He laid special emphasis on the fact that Meteorology was his special line, and that there is a very wide difference between an astronomer's and a meteorologist's work, professionally considered. He paid a high compliment to Mr. Russell, the Government Astronomer of New South Wales, and said that gentleman was an astronomer *par excellence*. The speaker claimed to be a Master of Meteorology, as Mr. Russell was a Master of Astronomy. Therefore their interests could in no respect clash.

He then showed some beautiful views of star clusters, sun storms and the planets, and said that although it was interesting to receive advices from an astronomical observatory of some change, for instance in the cloud belts of Jupiter, meteorology to the Australasian colonies was infinitely more practical, and of far more importance to colonial people in their ordinary walks of business life; of far greater importance for them to know what weather was to be expected, alike to the squatter, who wants rain for his stock, and to the humble housewife, who needs a fine day for washing. He went on to say that no scientific man could really be an atheist, and the scientist above all should be humble in his researches, for the more he knows the more he finds out how very, very much he has yet to learn. He endeavoured to bring home to the audience the awfully grand abysses of creation from the chrysanthemum held in his hand right through the planetary systems and suns up to the great nebula of Orion, where suns and worlds were actually being born.* As our moon depended for its stability upon the earth, and this earth upon the sun, so is the latter in its marvellous unknown orbit depending upon a sun still more powerful, and so on through all the stupendous suns of the universe until we arrive at the grand central sun, wherever that may be, and which may well be termed the Infinite Dynamo—who and where is God—the Infinite and Eternal Energy, from whom all things proceed. On the platform of science all sects and religions can meet and shake hands, and he endeavoured to show the audience how utterly paltry and small are all the bickerings and jealousies, and petty gossiping and misunderstanding of people when viewed from the grand and noble platform of science. Not only the various Christian sects, but those of all religions of the world—the Buddhist, Brahman, and Moslem as instances, without exception, are following that

innate striving of the soul to reach the Infinite. All these divisions are only following tracks, just as sheep tracks converge into the one fold, and the great English railway lines converge towards London. By the exercise of forbearance, charity, and brotherly love, can all people put themselves on the high road to reach the Great Master.

Having shown clearly by means of slides the difference between the astronomer's work and that of the meteorologist, the lecturer dived straight into the subject of his discourse, and described the work of the Chief Weather Bureau of Brisbane, which is divided into two parts—one, the study of Climatology or Local Climates, and the other Forecasting the Weather. He explained how every feature of country, in accordance with latitude, altitude, and physiographical features, has its own peculiar local climate, the hill-top, the slope, the plain, the scrub, the valley and the sea coast, and how important it was that these variations in climate should be thoroughly sifted by the light of science, so as to benefit agricultural, pastoral, and especially hygienic interests. Agriculturists, doctors, and patients consulted him with reference to climates suitable to their own special cases. A picture of his own house, the beautiful "Capemba," near Brisbane, was then thrown on the screen, and Mr. Wragge showed how, by an accurate study of local climate, he made a desert smile, and how a bare, rocky ridge of permo-carboniferous schist, and apparently of the most hungry and barren soil, was turned into a tropical paradise, wherein grow the choicest palms, and fruits and flowering shrubs from all parts of the tropical world. The land sloped towards the south at an angle of about 30° , and herein could be told a tale. Cold air always accumulates in the hollows or valleys, which act as reservoirs for the cold, because valleys not only have what meteorologists call their own cold of radiation, but also the cold of radiation from watersheds. Cold air from the slopes flows down the hills just as water does.

In applying this principle to his land, and by the climatological observations taken with his instruments, it was evident that on the higher parts of that land there was a more equable range of temperature, suited, after the soil had been properly treated, to the reception of tropical trees. He reserved in the lower parts of the land places for the plants of more temperate regions. When he told his friends his intentions—that he meant to turn a barren ridge into a tropical paradise—they laughed him to scorn, said he was mad, and fit for the asylum. He said, "Well, we will see"—and they did see. He next proceeded to alter the climate of the ground itself by deep cultivation and trenching, thus producing a more equable range of temperature in the very soil, and bringing the ground physically to the conditions it would enjoy were it within the

tropics instead of lat. $27^{\circ} 30'$ S., as it actually is. Hence his wonderful success, and hence the fact that the "Capemba" gardens are now one of the sights of Australia, and visited by people from far and wide.

Mr. Wragge referred to the advantages of planting trees, and urged the people to beautify their homes and to cultivate the æsthetic and taste for the beautiful in the minds of their children, who would thereby become elevated and ennobled in their ever-constant evolution and the better enabled to appreciate the supernal works of the great Master of Nature. How simple it would be if they only went the right way to work to plant a few trees, which would be growing and thriving whilst one is working and sleeping. Holes for the same if the land is not trenched should be thoroughly drained about 3in. lower than the hole itself. Although trees require water, stagnant water means death to them. He had travelled in about thirty-two different countries, and he was very much struck with the almost utter absence of a taste for the beautiful displayed by the average Australian, and deplored how striking in most of the Australian towns are the great vistas of ugly iron roofs and backyards, with the hideous paling fence and inevitable clothes line. In many cases people made no attempt at cultivating that taste for the beautiful which a little garden would develop. How many Australian towns might be made to smile and become places of beauty, if not for this, why then for the next generation; and for the welfare of posterity all parents ought to have the most sacred regard. And let the municipal councils, mayors and corporations bestir themselves and line the streets of their townships with avenues of palms and spreading shade trees which would convert many a back-blocks settlement into a smiling oasis. "The thing can be done easily enough," said the lecturer, "and with but little expense, when you know how."

Mr. Wragge next showed by means of the lantern the various instruments necessary to a thorough examination of local climate, embracing the dry and wet bulb thermometers, and the maximum and minimum self-registering thermometers, exposed in the standard "Stevenson" screen of the Royal Meteorological Society. It is absolutely necessary that the climates of the various Australian towns and centres of population should be compared one with the other, and scientific comparison can only be accomplished by the best instruments, the best and most conscientious observers, and by perfect system and method. These instruments must be exposed at a uniform height, four feet from the ground, and managed at all places on a strictly uniform plan—uniform in every minute detail, and with, he repeated, the most rigid system and good management. He insisted that only by such system and method, and by the most careful observation, can the various local climates be so

examined and compared as to give results of real practical utility.

Mr. Wragge then proceeded to describe the second portion of the work of the Chief Weather Bureau, viz.: "Forecasting the Weather," and showed by the slides the very interests served by such weather forecasts. Pictures representing the squatter with his sheep and cattle, the shearer, the miner, the sugar planter, passenger steamers in gales, yachtsmen, sailing ships, the invalid, and last, but by no means least, the humble housewife, were exhibited—real gems of art—and all these interests thus portrayed were served by the weather forecasts. Mr. Wragge said that meteorology is a young but growing science, and further investigations are absolutely necessary. It is necessary, if they would progress, to send—as the sailor sends his sounding lead to the bottom of the sea—their "sounding lead" into the upper regions of the atmosphere. Obviously the meteorologist should not be content with grovelling at the lower depths of the atmospheric ocean in which he lives, but should by means of balloons and kites fitted with self-recording instruments, and most especially by placing fixed observatories on the tops of mountains *near the sea*, examine the upper regions of the atmosphere, in connection with simultaneous observations made at lower levels, especially by the coast. Forecasts of weather have hitherto mainly depended upon a consideration of horizontal gradients for pressure, temperature and humidity; but the new line of research, as between the upper and lower regions, involves the discussion of vertical gradients. Only by such a study of vertical, or practically vertical sections of atmosphere, can a meteorologist hope to increase the accuracy of his weather forecasts. He mentioned incidentally that the Brisbane forecasts at the present time reach a percentage of accuracy of from 90 to 95 for all the Australian colonies, New Zealand, and New Caledonia.

Mr. Wragge then traced the history of the Chief Weather Bureau at Brisbane from its establishment on 1st January, 1887, to the present time. At first people were truly mystified as to the manner in which the general forecasts, which he was the first to inaugurate, were formulated. People believed that he ascended the old windmill in Brisbane, built by the convicts in years long past, and peered around with a big glass "for a little cloud no bigger than a man's hand," and that afterwards "old Wragge"—although the audience could see he was hardly as yet in the prime of life—came down and issued his forecasts with the look of a seer unto the people. He was dubbed "The Weather Prophet." He particularly disliked the term, for he was no prophet; he claimed to be a scientific meteorologist, all his forecasts being issued on thoroughly scientific lines. "There is no charlatanism," said he, "in the Chief Weather Bureau,

Brisbane." Showing the audience a fine picture of King Billy-Willy of the Kalkadoons* a famous aboriginal weather prophet, Mr. Wragge asked the audience if they would place him in the same category as the black fellow.

He then referred to the erroneous markings on the ordinary weather glass, viz: "Rain, change," and "set fair, etc.," and said that in Australasia those words meant absolutely nothing. In the interests of the people, he would like to secure every weather glass so marked, take a pot of Aspinall's white enamel and erase the words which had no meaning, although the instrument itself might be a good one. As the sailor held this creed—"I believe in the log, the lead, the latitude and the look-out," so the meteorologist's main "Articles of Religion" are couched in the formula, "I believe in latitude, longitude, altitude, physiographical features, and barometric diurnal range." The two main factors to be considered were latitude and altitude in discussing the interpretations of any given barometer. He showed that in the case of one of the old-fashioned weather glasses, the instrument might point to "fair," and be even rising towards "set fair," yet in Australia it might be raining heavily with more rain yet to come. The barometer might point towards rain, whereas the finest of fine weather might then prevail. The question of altitude has to be taken into consideration in dealing with barometers, because the instrument falls about 0.095 inch for every 100 feet that one ascends, and rises by about the same amount for every 100 feet of descent. Therefore at a high altitude, such as on the Darling Downs, one might have a very low barometer while yet there would be clear skies rivalling those of "fair Italia."

Mr. Wragge then drew a contrast between the "old windmill and the weather prophet," and the "scientific observatory and the Chief Weather Bureau, Brisbane." He showed on the screen the instruments exposed in accordance with the most perfect methods, and a picture of his office with the staff at work. Every day they received observations by telegraph from the Philippines, Hongkong, Singapore, Batavia, New Caledonia, New Zealand, and all Australasia, from a thorough discussion of which all forecasts are issued. In order to issue forecasts for any one colony, it is absolutely necessary to know the meteorological conditions prevailing as far afield as possible. Meteorologists cannot possibly recognise artificial or political boundary lines between colonies and states projecting into the atmosphere with a view to limiting their field of vision. In order to forecast Queensland weather, for instance, one must know the conditions prevailing in Western Australia. Recognising this principle, his first act, after being appointed Government

* A tribe on the Georgina River, North-Western Queensland.

Meteorologist of Queensland, was to establish with his esteemed colleagues an intercolonial exchange of data. Thus at once were the meteorologists and astronomers of the respective colonies placed on the same footing, each receiving the records from the main stations all over Australasia. Thus, had they chosen, a "Central Weather Bureau," could have been established at Perth, Adelaide, Melbourne, Sydney, Hobart, as the case might be. Therefore, they could not complain of the Chief Weather Bureau having been started at Brisbane, as it was perfectly fair play—nay, his action in starting that office at Brisbane, was one of duty, for Queensland had intercolonial interests as well as internal, and these it was his province also to consider in their meteorological aspects. "And," added Mr. Wragge, "I am only too pleased can I by serving the all round interests of Queensland concurrently serve also those of all the grand Australian colonies, soon to be dignified by the title of States."

But exception was taken by his esteemed colleagues to his issuing forecasts over the heads, as it were, of his confrères. He explained to them that they were each, as it were, running a race, each striving to do his best for his respective colony, and that it was quite admissible, on the data received, for each to issue intercolonial forecasts in the general interests from each of their capitals, and that if they did so he would most willingly accept their forecasts for Queensland, and publish them side by side with his own, as an interesting experiment, watching in all honest rivalry, who would come out on top. He told them that under no consideration would he cease to issue intercolonial forecasts unless so ordered by the Queensland Government.

As that Government never gave him orders to the contrary, the intercolonial forecasts have been maintained since 1887, and would surely continue. He intended to stick to the position he had taken up, as the British bull dog (a telling picture of which was put upon the screen) sticks to the Union Jack. If they had done so much under the existing régime in the interests of all Australasia in the matter of weather forecasting, how much more could be done under the Federal flag and the Federal Weather Bureau, which it is earnestly hoped will be established with the "Jack" of the dear motherland floating proudly over all? Already he had a splendid system of storm signals along the Queensland coast at the principal lighthouses, and signal stations. He wished to extend that system to all the inland towns by means of flags of different colours and designs, thus communicating speedily to the people what weather could be expected—hot winds, cold spells, dry times, rains, thunderstorms, whirlwinds, etc. He looked forward to the time when forecasting signals, in the form of tin discs of various colours would be fixed to the guard's van of

the principal mail trains, in order to show the passengers the type of weather they might experience during the journey. This has been done in the United States of America.

He then referred to the Chief Weather Bureau at Washington, and stated that after the issue of a forecast there the information it contained is known within four hours throughout the length and breadth of America—from the Pacific to the Atlantic coast, and from the Canadian frontier to New Orleans and Mexico. The forecasts are also sent to every agricultural and mercantile centre, and have proved to be of the greatest service to every section of the American community. What can be done in the United States can be done equally well in Australia, if the people will only have the enterprise. Having been in America and inspected the system, he had the working at his fingers' ends, and showed the audience how, under Federation, the system could be most readily introduced throughout Australasia with good organisation.

Mr. Wragge then showed a picture of the standard barometer, and explaining its delicate construction, said that it should be handled with especial care when carried from place to place. He referred to the absurdity of people complaining, as they have done, of his absence from Brisbane. His work lay in all parts of Queensland and they could not expect him to make "bricks without straw." To make his forecasts he must have his delicate instruments in the wild western backblocks, and throughout the length of Cape York Peninsula, as instances. In the early days of the Bureau he had of course to go in person to start those stations; to carry the fine instruments with his own hands, and to teach recruits the first principles of meteorological physics; and he never left any station until he had proved that his pupils were thoroughly competent to perform their duties. It was impossible to trust those beautiful instruments, reading to the one-thousandth part of an inch, to the honest but not too tender mercies of the railway guards, coach drivers, and teamsters, who had never studied in a physical laboratory. He mentioned one instance where the barometer had to be sent as a "fragile parcel" because objections were raised to his leaving Brisbane for the purpose of personally fixing it, and instructing the officer in whose care it would be in its use and management. Consequently, it was dumped down by the carrier at the local Telegraph Office with an intimation that the "fakement" had arrived. The raw hands there had then to make what use of it they pleased, without any knowledge of its construction or principles, and thus many valuable instruments be ruined, involving loss to the Government and loss to the forecasting service—instruments which cannot be replaced except from London. It would thus be seen how necessary it was that new stations should be started by an experienced

officer in person, and thereafter inspected from time to time, preferably by the head of the office, since by his influence he can infuse a spirit of enthusiasm into his new observers. The work of the Bureau is not advanced but vastly hindered by the head officer being glued to his chair as a sort of automaton. He must travel and become acquainted, not only with the little idiosyncrasies and personal peculiarities of his men, estimating what scientists call "errors of personal equation," but must himself see and gain *personal knowledge* of the physiographical and geographical features of the country over which, meteorologically, he reigns supreme, and yet some people, as ignorant of meteorology as of the differential calculus, would actually presume to teach him his business, as haply some toothache patient would tell an experienced dentist what type of pincers should be used, and how they should be handled! In objecting to his absence from Brisbane, on inspection duty and for teaching purposes, some people imagined that the office work would suffer, never reflecting that it is the part of every good organiser so to provide that in the event of his occasional absence the work of his bureau shall be faithfully continued.

Recognising that the foundation of a great Weather Office should be "upon the rock" and not "built upon the sand," Mr. Wragge had personally trained special assistants to carry on the daily routine, who would be able to issue the forecasts were any accident to befall their chief, for important national work should not depend upon the uncertain tenure of one or two lives. To make such provision was a loyal duty that he, as a good citizen and public servant, owed to the country—and yet certain persons had put forth the unutterably mean suggestion that it was undiplomatic and impolitic to teach an assistant, since he might "jump his chief's claim," and "turn dog" upon that benefactor who had taught a pupil a profession. "But" added Mr. Wragge, "for shame; loyalty and duty are *prime factors* with *men* who serve their country, and who remember Nelson; and those who have not these qualifications, as in the imaginary case of a disloyal subordinate, have no right to occupy a public position, for they are dangerous alike to themselves, and doubly, nay trebly, dangerous to the State, and to the community."

Mr. Wragge then explained how necessary it was, that all barometrical readings should, before they can be used for forecasting purposes, be reduced to the standard temperature of 32 degrees Fahrenheit and to mean sea level. This having been done, he showed by means of diagrams how such reduced barometric readings portray the various types of atmospheric disturbances. He showed the high pressure system, or anti-cyclone, as it is called, which is virtually a mountain of atmosphere, and its correlative cyclone, or low pressure system,

which is really an atmospheric valley or hollow. Anticyclones and cyclones were more or less circular in shape with the exception of the antarctic and equatorial "V shaped" disturbances. The winds around anticyclones in the Southern hemisphere circulate in the opposite direction to the hands of a watch and around cyclones in the same direction as watch hands.

Mr. Wragge then described how the weather charts are drawn. At the Chief Weather Bureau on a blank map of Australasia the reduced barometric figures are entered against the respective stations, and places where the barometer reads alike are joined by lines which are termed isobars, or lines of equal barometric pressure. He then touched upon the barometric gradients, which were clearly indicated on the diagrams by the isobars being drawn closely together. On every side, quadrant or segment of an anti-cyclonic or cyclonic system, there are different winds, different humidities, different types of cloud, and different conditions to those obtaining on the opposite side. These atmospheric waves and disturbances chiefly travel from west to east. Every twist in the isobars has its own particular type of weather, in accordance with latitude and physical geography. When he sees these atmospheric waves travelling from west to east over Australasia, and notes their rate of travel and course, it is possible for him to forecast the conditions that such disturbances will bring over every district from Cape Leeuwin to Thursday Island, and from Cambridge Gulf to the Bluff in New Zealand, with a percentage of accuracy ranging from 90 to 95. Charts were shown indicating droughts and frosts, hot winds, southerly busters, conditions producing trans-continental rain-fall, deep antarctic disturbances causing heavy southerly gales, and tropical hurricanes that produced the Queensland floods.

He made special mention of the great value of the international meteorological service which he had the honour to establish, under the auspices of the Queensland Government, with New Caledonia, after the opening of the cable. They received in Brisbane observations from Noumea and Gomen twice each day, and in return for the observations supplied by the French he issued forecasts for New Caledonia and cabled them over. These forecasts have been most successful, and he was able to warn the French of the approach of such a hurricane as the one named "Sana." For his services in this direction he had received numerous letters of thanks from various parts of Australasia, including the Governor of New Caledonia.

Mr. Wragge drew a vivid picture of the happy little newsboy and the more phlegmatic "cochers" at Noumea flying before the advance of "Sana." After showing the damage caused by that hurricane in "La Nouvelle," he proceeded to speak of the

hurricanes affecting the Queensland coast in the later summer months. Special mention was made of the disturbances named "Eline" and "Luita," and to the fact that he was the first meteorologist to adopt the system of giving names to storms, in order that those who might experience any storm might more readily associate their experiences of the storms by reason of their names. He was thus able to serve the public in a domestic manner. In his general daily remarks, which were framed in a pleasant, readable style, in order to induce the people to take a more vital and real interest in their own Weather Bureau, he had recommended parents of infant daughters to forsake for the time the stereotyped "Susan," "Jane," "Eliza," and "Anne," and to substitute therefor the names of the tropical hurricanes, which are called by the mellifluous appellations of the soft, loving-eyed, dusky beauties of the South Sea Islands, savouring of the taro patch, palm groves, yams, and the coral reef. In this he had succeeded, and when he was in the suburban trains, going to his residence from the city, people accosted him with the pleasing information that they had increases in the family, and had named their daughters "Eline," "Luita," "Leala," etc.

Mr. Wragge next exhibited a beautiful chart showing the big hurricane that was so disastrous to the pearling fleet on the north coast of Queensland, together with pictures of the various types of clouds, and explained that, in connection therewith, what the camera is to the astronomer, so it is becoming to the meteorologist, as it enables him to pourtray with unerring accuracy the various types of cloud which obtain on the sides and around the various atmospheric disturbances.

The second part of his lecture was devoted entirely to high-level stations. Mr. Wragge was the first to establish the first mountain station in the United Kingdom—that on Ben Nevis, in connection with the Scottish Meteorological Society. In ascending that mountain he had to do battle with many gales and storms when going up from Fort William, the correlative low-level station. The Ben Nevis observations were discussed by the Scottish Meteorological Society and the Royal Society, Edinburgh, and proved to be of great value in weather forecasting, as would be seen if any one consulted the volumes of the Royal Society of Edinburgh's publications, and also the archives of the British Association for the Advancement of Science. After coming to Australia for the third time he started correlative stations on the summit of Mount Wellington and at Hobart in connection with the office at Brisbane. Those two places in the Southern Hemisphere occupied almost the counterpart positions to Ben Nevis and Fort William in the Northern Hemisphere. As the Ben Nevis observations threw great light upon the vertical sections of atmosphere in connection with the North Atlantic cyclones, so the Mount Wellington

observations threw light upon the vertical atmospheric sections attaching to the Antarctic "V" disturbances. It was necessary, moreover, in order to still further investigate the Antarctic disturbances in the upper regions that a station should be started on Australia's highest mountain—Kosciusko, 7,328ft.—in connection with a station at the sea-level at the nearest point to the mountain in horizontal distance. Having determined to erect such stations, and in the teeth of every obstacle, he had placed his instruments on the top of Kosciusko.

Mr. Wragge gave a graphic account of the ascent of Kosciusko, in December, 1897, to establish the observatory, and showed a beautiful collection of slides illustrating the ascent and the pitching of the tent, wonderful cloud views, the observatory staff, big snow drifts, the wild fastnesses of the magnificent snowy ranges, great wreathing and twisting cloud masses during the ascending currents of a low pressure system, the wondrous anthelia, or glories of light, which can be seen to perfection on Kosciusko, marvellous effects of the full moon shining on the cloud oceans, beautiful lunar rainbows, St. Elmo's fire during electric disturbances, and the grand, awful-looking murky shadow of the earth before sunrise to westward and after sunset to eastward, showing night actually rolling away and rolling in. In stirring words he painted the glories of the starlit sky on a clear, high pressure night, as viewed from the mountain. Lofty thoughts forced themselves on the mind in these wild, weird solitudes. The eyes turned to Alpha Centauri, the brightest of the two pointers to the Southern Cross, and our own sun's next door neighbour. In these mountain musings one recalls that could one travel at the rate of 60 miles an hour incessantly, thirty-five million years would be required to reach Alpha Centauri. "And," said the lecturer, "contemplating the marvels of the Cosmos from Kosciusko's heights, and acknowledging the Master of that glorious scenery, the mind trembles as in the balance, and instinctively turns to the Infinite, refusing to leave the Cathedral of Kosciusko an atheist." Beautiful scenes then followed, showing a portrait of Mr. Ingleby (one of the observers) in his hut during leisure moments, taking the sun for time, Arctic dress, negotiating snowdrifts, snowshoe practice, the Observatory completed, and many other views of very special interest.

Mr. Wragge begged those of his hearers who might visit Australia to go to Kosciusko at the first opportunity, assuring them of a hearty welcome and reception at the Observatory. He spoke of the value of the mountain during certain conditions of atmosphere from a health point of view, and how a better knowledge of its surroundings would open up the Manaro district, and bring trade and more life to the neighbourhood. Speaking of the observations he said they were proving of a

value unique in the Southern Hemisphere; but the people were too impatient, for they wanted a knowledge of the results at once, whereas one or two long sets of simultaneous observations had to be taken at the summit of Kosciusko and at the correlative sea-level station at Merinabula, near Twofold Bay. This was required in order that mean or normal values might be ascertained, enabling normal or datum lines to be laid down. With this accomplished the daily divergencies, as between the two stations, from these two normals, be they above or below, plus or minus, will be considered in connection with the types of weather prevailing at the time and the conditions succeeding for some days thereafter. Then when such abnormals repeat themselves such data can be utilised in their bearing upon vertical sections of the atmosphere in the practical weather forecasting before referred to. But the daily observations cannot yet be used at Brisbane until telegraphic or telephonic communication is established. The Government of New South Wales has kindly offered to provide a quarter of the cost of a cable, which is about £800, if the other colonies will find the rest. He seems to think it hopeless that the work will be done until Federation is accomplished.

Mr. Wragge paid a warm tribute of thanks to Mr. R. Barr-Smith, of Adelaide, the Right Honourable G. H. Reid, and Sir William Lyne, of New South Wales, for the contributions which have enabled him to carry on observations night and day, summer and winter. His thanks are also due to the New South Wales Government for continuing the necessary grant. The maintenance of the observatories at Kosciusko and Merinabula is one thing, and the publication of results another thing. Money is necessary strictly for printing long tables of figures and for photographing the meteorological diagrams. An appeal has been made to the squatters and others interested in practical meteorology.

At the conclusion of the lecture a beautiful picture of the Queen was exhibited, and Mr. Wragge called for cheers for Her Majesty, which were heartily responded to.



A HOLIDAY IN JAPAN.

By the Rev. J. W. HEYWOOD, of Ningpo.

[Addressed to the Members in the Library, on Tuesday,
May 14th, 1901, at 7-30 p.m.]

IT was in the autumn of 1891 that I first saw Japan. After fourteen days of mid-ocean travel, ten of which had been incessantly trying to convince me by the process of physical strife that "Terrific" might sometimes be a synonym for "Pacific," the distant shores of the Land of the Rising Sun became visible through the porthole of my cabin.

It was a beautiful Sunday morning, and the numerous sails of Japanese fishing boats seemed to be made of cloth of gold as the rays of the sun glanced from them.

Strange faces, peculiarly-shaped junks, picturesque villages, and the great Fujiyama towering above—all in snow-crowned splendour—made me feel that one of the dreams of my boyhood was realised. Often had I mused on the long, narrow islands which formed one of the trio of mystic countries of the Far East—China, Corea, and Japan. How fascinating the prospect of seeing these lands, and the different races inhabiting them!

China was to be my home for ten years to come. Corea, whilst being a land of interest, was still of minor importance when compared with Japan.

What wonder, then, that the glimpses I had of the Japanese and their country during our short calls at Yokohama, Kóbé, and Nagasaki made me determine that some day in the future I would return and more leisurely study their characteristics, and more quietly enjoy the beautiful scenery.

Seven years had passed by, and once more I was on board the "Empress of India," the same steamer which, in 1891, carried me across the Pacific to my appointed work in China. The treacherous climate of China had at last forced me to own that I was mortal, and with the prospect of a serious breakdown in health, unless I left its shores for a short time, the long-looked for visit was undertaken as a positive necessity, and not as I had pictured to myself in years gone by, as purely a pleasure trip.

Let me briefly refer to the Treaty Ports which we called at during our six days' journey from China.

Nagasaki, which was the first port in the early days to become known to the outer world, was our first point of call after thirty-six hours' sail from Shanghai. The approach to this port is very interesting and charming. Through very narrow channels, the land-locked harbour—one of the finest in the world—is reached. Out at the harbour's mouth stands the isle of Papenberg, from the precipitous sides of which, at the beginning of the seventeenth century, many of the early Christians were hurled. The harbour always presents

a busy aspect, Nagasaki being the Newcastle, or, rather, the Cardiff of Japan. For it is here where most of the coal used by the ocean-going steamers in the Far East is shipped. The mode of loading coal, whilst seemingly a slow process, is, as a matter of fact, expeditious. The barges come alongside the ship, and in a very short time a series of platforms is rigged up the ship's side, which are then occupied by several score of Japanese men and women, who literally become a living dredger, small baskets of coal being rapidly passed from hand to hand, duly weighed, and put in the bunkers. Two thousand tons have been thus shipped in the short time of from six to seven hours.

From one of the famous temples situated on one of the hills, and which is commonly called the Nagasaki Cathedral, a fine view of the harbour, foreign settlement, and native town is obtained, the whole reminding one most vividly of the panoramic view obtained from the Peak overlooking Hong Kong and its harbour.

Eight or nine hours steaming from Nagasaki brings the steamer to the famous Straits of Shimonoski, the naval base of the Japanese Navy, and the most strongly-guarded entrance to the Inland Sea of Japan. So difficult is the navigation of these straits, owing to their tortuous nature and the swiftly-flowing currents, that no ship attempts to pass through them from sunset to sunrise. Strongly fortified, commanding the most important entrance to the Inland Sea, the chief coaling station for the Japanese Navy—it having a reserve of 250,000 tons of coal when we passed through—Shimonoski may be described as the Gibraltar of Japan.

For the whole of one day, with the ship steaming at from fifteen to eighteen knots per hour, the ever-changing beauties of the Inland Sea delight the passengers. Three times have I passed through this sea, each succeeding passage being more charming than its preceding one. Imagine the possibility of sailing from lake to lake in Westmorland and Cumberland on a large ocean liner, with all the varying tints with which an Eastern atmosphere paints the landscape; an ever-changing view of small steamers, junks, and all the quaint craft used by the Japanese for fishing, gliding past you on the calm surface of the waters; whilst in innumerable bays and dotted on the circuitous coasts are numerous villages and towns nestling at the base of hills, which are covered with Nature's glories, and you will have some idea of the Inland Sea of Japan, which the people of all nationalities who have journeyed through it declare to be the most charming in the world.

Kobé, the last treaty port opened in Japan, is in a central part of the empire, and is next to Yokohama in commercial importance. It has a fine harbour, which, however, is exposed somewhat to the south. Its settlement is one of the best in Japan. From this port travellers can easily reach the old capital of Japan, Kioto.

An open sea journey of twenty-three hours intervenes between Kobé and Yokohama, or, as the Japanese call it, Kanagawa.

Arriving here, Yokohama harbour seemed quite familiar as once more the fine Empress boat dropped her anchor. In the distance Fujiyama stood forth in grand solitude, shorn for a short time of its snow-capped beauty, it being the month of July. For ten months every year its top is clothed with virgin snow; but at an altitude of

12,365 feet the fierce summer heat claims the mastery for at least one or two months.

As Yokohama was to be our headquarters during our stay in Japan we disembarked, being taken on shore by one of the numerous sampans which were plying for hire. These boats lie low in the water, and give one a feeling of insecurity the first time a trip is made in one of them. They are, however, very safe craft, and are sculled by muscular boatmen who know thoroughly their business. The Customs passed, we were at liberty to go on to Dr. Kelsey's house, where we had made arrangements to stay. The house of this American lady doctor was situated on what is called The Bluff, an extensive cliff some 150 feet above sea level, and commanding fine views of the bay. The Bluff is the residential portion of Yokohama for Westerners, and is dotted with fine houses, and has very good roads. It is on this cliff that the English, Germans, and Americans have their Naval hospitals, the former of which I visited and found to be an ideal place for the "handy-man" in the Far East to recuperate when physically run down. The Bluff, whilst possessing many qualities which make it an ideal residential place, has one great drawback to the casual visitor, viz., the fear that it will slide into the sea some time when one of the numerous earthquakes are shaking it! For Yokohama has its fair share of earthquakes every year—nay, we may say, every month.

One of the great earthquake centres is in Tokio Bay, only a few miles away, whilst the present extinct Fuji is only 75 miles away. To think of Fujiyama becoming active again makes one shudder as imagination pictures what would happen to Yokohama. Long may Fujiyama retain its majestic calm, and be admired for its silent beauty! My first experience of an earthquake was rather alarming, and yet interesting. Quietly reading about eleven o'clock one night, I was disturbed by a rattling of the venetian shutters outside the room windows. This increased in violence, and then the walls of the room began to rock, causing a similar feeling to being in a ship's cabin during a storm. Before any thought of an earthquake flashed through my mind one of the ladies in the house, overcome by terror, was calling out in most agonising tones. Fortunately the movement passed away after a duration of just over a minute—which seemed ten—according to the official report next morning. Several houses were thrown down a few miles away, and at the same spot several fissures in the earth were made. Referring to the sensation being similar to being on board ship during a storm, the first words which our little boy, aged three years, made next morning bears out the comparison. Without hearing us say anything, he told us as soon as he was awake, that "The ship had been rolling."

To mention only one of the public buildings in Yokohama, viz., the Post-office, will be sufficient to give some little idea of the progress Japan has made in civilisation. Situated on what is called "The Foreign Settlement," it is worked entirely by Japanese officials on the American system, being an indication of their cuteness in taking the best, and only the best, from Western nations. The street in which the Post-office is situated is a very fine one, in which other important offices and business houses are situated. The jinriksha is the favourite mode of locomotion through the streets of this and every large Japanese town.

It is not my intention to speak of the dozen or more places I visited within a radius of thirty miles of Yokohama, all of which, if time and opportunity were favourable, would be of interest to narrate. If I make exception in one case the importance of the place will be sufficient apology. Not to visit the capital of the Empire would be an unpardonable sin for the visitor to the shores of Japan to make. To attempt to describe all the places of interest which I saw there would also be an unpardonable sin on my part this evening. You will have heard and read much of Tokio, and I only need tell you of an interesting sight I saw in the Zoological Gardens in Yueno Park. It marks a distinction between China and Japan. One of the wonderful sights in the zoological collection was a couple of black pigs, such as the resident in Chinese cities is familiar with as being part of the lower class of Chinese households, as much, if not more so, as we have been given to understand is the case in certain hovels in the Emerald Isle. Whether they constituted part of the spoil which the victorious armies of Japan brought back with them from the Celestial Empire I leave you to decide.

What I wish more particularly to describe in this paper are the Miyanoshita, Hakone, and Nikko districts.

An English Baptist Missionary from Shantung, China, was my companion in the walking tour through these districts. Previous to the new treaty of 1899 coming into force, all foreigners desirous of travelling in the interior—which meant any distance beyond 40 miles from Treaty Ports—had to have a passport.

Application had to be made through the British Consul, who forwards it to the Kencho—the Prefectural Office—where the Japanese portion of the passport is granted, to which the English translation is afterwards affixed at the British Consulate. A fee of two yen (about 4s. 4d.) is charged for this document, all of which goes to the British exchequer.

I made due application for a passport, but, through some inadvertence, it had not arrived by the time we had arranged to start. Running the risk of being sent back to Yokohama under police escort I went off without it. Fortune favoured me, for on applying at the railway station for a ticket to Kozu—just over the 40 miles inland from Yokohama, and from which place we intended to commence our tramp over the hills—no demand was made for my passport.

How like home, and yet how unlike home, was the scene which presented itself on the platform! The bustling, hurrying crowds, porters carrying handbags and wheeling truck loads of luggage, the cool, supercilious looks of certain groups of persons whose aspect plainly declared to all that they were old travellers by rail, in contrast with the nervous demeanour of many whose actions plainly denoted that they were about to make their maiden trip: these, and the shrill whistles of arriving and departing trains, made up a scene which I had not witnessed for seven years. This, of itself, was refreshing and interesting, but how much more so when all the actors were Japanese?

The effect was heightened by the costumes worn by the people. There were those who retained the full Japanese dress, the variegated colours and loose but comfortable style of which seemed pretty and charming compared with the dress of many who had adopted the

Western style of close-fitting clothes and stiffly-starched collars. There were those, however, who were neither Eastern nor Western in appearance, whose dress, consisting of a foreign hat and a pair of close-fitting leather shoes, plus the usual Japanese dress, caused an amused smile as they proudly strutted up and down the platform, evidently self-pleased with their evolutionary dress.

Let me notice one significant difference between the year 1897 and the time when Mrs. Bishop first visited Japan.

In her book, "Unbeaten Tracks in Japan," Mrs. Bishop states that in connection with the railways there were Chinese who acted as ticket clerks, and that the guards and engine-drivers were English. Now you may seek in vain for Chinese or any other foreign employees. The Japanese can now manage their railways themselves, as, in fact, they do everything connected with their country.

The forty miles railway was full of charm. True, we did not rush through the country at express speed; but for this we were thankful, as it gave us an opportunity to admire the beauty of the country and the numerous picturesque villages through which we passed. Every additional mile we travelled seemed to bring us nearer to the old unwesternised Japan.

Houses, shops, and restaurants were according to primitive architecture. The paper-sliding walls were pushed back, and the whole interior of the places was revealed to us, the inhabitants being calmly indifferent to the publicity of their doings.

On arriving at Koza we found framecars awaiting to carry passengers to Yumoto, a pretty village situated at the base of the Miyanoshita group of mountains. As it was our intention to tramp over the Miyanoshita and Hakoné districts, we reserved our strength by taking tram to Yumoto.

Arrived at the village, we girded our loins, and, refusing the aid of jinrikishas, beyond hiring one for our handbags, we commenced our climb of 1,200 feet to the famous village of Miyanoshita.

Some may say that it must have been a toil to climb these 1,200 feet on a hot July day. Not at all. We were free from the trammels of society, and could take off our coats without any fear of suddenly meeting with other Europeans. Then the refreshing tea-houses, perched upon projecting rocks commanding some of the most beautiful scenery, afforded havens of rest. As we approached these places we were greeted by the proprietors, and invited to recline and drink tea, an invitation we invariably accepted. Thus, after two hours climbing, resting, and tea drinking we entered the village of Miyanoshita.

This place has gained a wonderful reputation as a health resort. Cool in summer, it is comparatively warm in winter, thus attracting visitors all the year round. To meet the needs of foreign visitors a large hotel has been built, affording all the comforts which an American or European traveller can reasonably hope to have anywhere. This palatial hotel had no attraction for us when there was the counter attraction of two or three large Japanese inns where we could stay.

As we entered the large courtyard of one of these inns three or four young girls came forth to welcome us, making obeisances such as only Japanese can perform. Making known with some little difficulty

our desire to rest and have our noon meal, we took off our shoes, and put on the sandals they brought for our use.

We could then enter the rooms, which we found to be scrupulously clean. The corridors were polished, and the rooms covered with matting. There were no chairs, so we had to recline, à la Japanese. The only piece of furniture in the room was a small table about one foot in height. On this were placed a small tea-pot, hot-water bowl, and two small teacups about the size of an ordinary eggcup.

We were most assiduously attended by a Japanese waiting-girl, who, on bended knees, saw to all our wants being supplied with a politeness exceeding even the Chinese.

Before tiffin was served we were invited to indulge in a bath. Kimonos were brought, and after carefully watching my companion, who knew how to proceed, he having been in Japan before, I solved a seemingly delicate operation, and was soon robed in the long, flowing gown, and on my way to what proved one of the most refreshing modes of immersion.

The Japanese bath consists of a deep modern tub, in which is fixed a charcoal stove. A tubful of ice-cold water can be made to boil in about four hours time. This enables one to enter the bath at a moderate temperature, and leave it any time before it reaches boiling point. Some travellers have stated that the Japanese mode of bathing is exhausting. My experience was the reverse, and during the remainder of our tour the bath claimed my devotion three times a day.

In this inn I had my first Japanese meal. It was served in bowls somewhat after the Chinese style. We had to eat with chopsticks, and the way we used them drew forth flattering remarks from our attendant. The meal consisted of soup—the composition of which I dare not venture to state—fish, eggs, and two other dishes, which were purely Japanese. White, delicious rice was served *ad libitum*.

After our repast we resumed our tramp, climbing another 700 feet, to a small village called Kowakidani, where we stayed over night. This village used to be called Kojigoku, meaning "Small Hell," having derived its name from the sulphur springs which abound in its neighbourhood; but after the Mikado's visit in 1877 its name was changed to Kowakidani. Many foreigners were staying at this place for the sake of the curative qualities of the sulphur baths.

Shortly after daylight we were on our way over the mountains to Hakoné. We had to pass through the village of Ashinogu, which is 2,780 feet above the sea. Here were sulphur streams running over beds of rocks, coated white with the chemical element.

We came across many relics of olden times. In one part of the mountains were three monuments. Two were in memory of the Soga brothers, who, in the year 1193, carried out a vendetta against a man called Kudo Suketsuné, who had murdered their father. They finally accomplished their purpose by killing him in the hunting camp of the Shogun Yoritomo, at the base of Fujiyama.

One of the monuments, smaller than the other two, was dedicated to a beautiful woman named Tora Gozan, who was betrothed to the elder brother, but who, on his death, became a nun.

In another part of the mountains, close by two meres, which are the remains of ancient craters, was a large image of Jizo, carved in

relief on a block of andesite. The Japanese tradition is that a certain Buddhist Saint, Kobo Daishi, carved this marvellous work of art in a single night. Every year, on the 23rd of August, a grand festival is held in honour of the image.

The mountain scenery upon which our eyes feasted is beyond my power of description. The climax in picturesque beauty was reached when, from the top of a mountain pass, we had our first view of Hakoné Lake; 2,350 feet above sea level, formed in the crater of what was itself at one time an active volcano, this lake is situated in the midst of wild but beautiful mountain scenery.

One attraction to foreigners and Japanese alike is that on clear days, as the sun is sinking in the west, the image of Fujiyama, towering above all other mountains, is reflected in its waters. What wonder, then, that there is an imperial palace situated on one of its banks, built in foreign style, where the Mikado can retire from the cares of state, and in this mountain solitude can commune in spirit with the sacred mountain.

Whilst at Hakoné we attempted to reach the "Ten Province Pass" without a guide, and suffered the usual penalty of getting lost. From the top of this pass ten different counties can be seen. We were forced to forego this pleasure, and instead had the most thrilling experience of being lost on the mountains for a short period, owing to heavy banks of cloud blotting out our road. We succeeded in getting back to our inn just before dark, and the following morning crossed over the lake to visit Ojikogu—"Great Hell."

Ojikogu well deserves its English name. It is a desolate place, reeking with sulphur. We saw it under the most impressive conditions. The wind was moaning dismally through the gorge, driving thick banks of cloud, which now and again lifted, revealing great stretches of seared soil, which in certain places gave forth sulphuric vapours which impregnated the atmosphere with a smell almost unendurable. The road in certain places was guarded by fences, as a false step might lead to one breaking through the thin earth-crust and being literally consumed in brimstone.

We were glad to get rid of the uncanny feeling engendered by our visit to the "Great Hell," and, after a bath and a Japanese repast in the quaint village of Ubago, we tramped across the delightful plateaus leading to the Otome-toge, or Maiden's Pass.

We crossed the great cattle farm at Sengoku-hara, the most extensive of its kind in Japan. It was well fenced, and the stables, etc., would have done credit to any farmstead in England.

The steep climb to the summit of the Otome-toge well repaid our efforts. Standing 3,400 feet above the sea, with the great plain of Gotemba lying before us, the finest view of Fujiyama is obtained. An extent of country, measuring not less than fifty square miles, is said to be occupied by this gigantic mountain, and the lofty ranges which cluster about its base. Descending to the plain, we had to be satisfied with treading only the base of the sacred mountain; and then once more taking advantage of the modern railways, we were carried for over 100 miles to the beautiful mountain district of Nikko.

What the sacred island of Pootoo is to the Chinese, Nikko is to the Japanese. It is their Mecca. Every year thousands of pilgrims

visit the shrines, but the time when the place is most crowded is in September, when the annual Matsuri is held.

Nikko is ideally situated amongst the most charming and romantic mountain scenery in Japan. Beautiful for situation can be said in all sincerity of these famous temples, perched as they are 2,000 feet above sea level.

If the pilgrim wishes to approach the last resting place of the first and third Shoguns in a spirit of religious devotion, he may slowly make the last part of his journey along one of Nature's most magnificent corridors, an avenue of from 20 to 30 miles of *Cryptomeria* trees, which tower to a great height, and which is said to have been planted by a man too poor to place a bronze lantern at the shrines of the Shoguns.

The privileges of the Nikkoite in former days were very great. "Alas!" so mourns the present generation, "we have been disenfranchised." A Nikko man could travel anywhere in Japan, and be sure of having free transit and free board. Now he has to conform to all the monetary demands that make travelling far afield vexatious and expensive. Previously he could, whilst staying in some distant province, sow his wild oats, and if it should so happen that the law laid hold of him he could laugh authority to scorn by uttering the magic words, "I'm a Nikko man!" Now, the law is no respecter of persons.

If the people are shorn of many of their privileges, Nikko itself remains unrivalled in the Far East for the natural beauties of its surroundings and the magnificence of its temples. The profuseness of the decorations of the temples, both external and internal, defy description.

Eastern art is displayed with a prodigality that is startling. Wealth has simply been lavished in erecting and endowing these monuments surrounding the graves of two of the greatest Shoguns Japan ever had. For these temples have been erected as ante-rooms, as it were, through which the graves of Iyeyasu and Iyemitsu can be approached.

"No other ruler of Japan," said my friend, Mr. Funikosi, one of whose houses we had rented for a fortnight, and who was one of the trustees of the temples, "No other ruler of Japan will ever have such a gorgeous sepulchre, for the simple reason that no Emperor will be prepared to spend the vast amount of money which these have cost."

And as one was led from room to room, and terrace to terrace, one felt that this opinion was not given without reason. Every panel was a work of art. Lacquer pillars, one of which alone was said to have cost eighty thousand yen (£8,000), supported ceilings which were covered with drawings in the same costly material. Gold, silver, and bronze ornaments, worth more than a king's ransom, attracted the eye, not so much because of the precious metals as for the beauty of their designs.

This magnificence scarcely prepared one for the final court, reached by a flight of 240 stone steps, in which were the graves of the Shoguns. For beyond the finely-worked bronze gate, which kept unhallowed feet from approaching too near to the pile of stone under which lay the dust of one of those who had been accustomed to "the seat of the mighty," there was nothing to indicate the last resting place of the ablest and

greatest man that Japan has produced. On the bronze gates of one of the tombs were Sanscrit characters, which, as samples of Eastern epitaphs, are very interesting. They are as follows:—

“The sun and moon have light;
This man's light was clearer and brighter
Than the light of the sun and moon.”

“It is in nature for all to live,
It is in nature for all to die.”

“The firmament is high and spacious;
This man's soul was higher and more pure
than the firmament.”

From amongst the profuse carvings adorning the exterior of the temples, there is one design repeated several times around the stable of the “Sacred Horse,” which has the virtue of conveying a very important lesson to Occidentals as well as to Orientals. It consists of a group of three monkeys. One holds its hands over its eyes, another is covering its ears, and a third has its hands over its mouth. Interpreted, they convey the lesson: “Shield your eyes from seeing evil; stop your ears from hearing evil; keep your mouth from speaking evil.”

There is only one place in Nikko which reminds one of scenes in China, and the religion which Chinese Buddhists propagated in Japan centuries ago. It is called Ganmangaiue, or “The Garden of the Gods.”

By the side of a rushing mountain stream, called Daiyagawa, are over one hundred large stone images of Buddha. Many are armless, and some are headless; their dilapidated state indicating what is a fact, that Buddhism is a waning force in the religious life of the Japanese.

Shintoism still claims pre-eminence. The leaven of Christianity, however, is silently working in many hearts. There are many of the type of Nicodemus amongst the wealthy and official class. When they realise that it is not in externals that redemption from their past and present state is to be obtained, that it is alone to be effected by Him who said, “Ye must be born again,” then will Japan rise to a greater position amongst the nations of the earth than any possible treaty or force of arms can secure for her.

There is not time to tell of Chuzenji and its lake, seven miles distant from Nikko, and at an altitude of over 3,000 feet. From this lake the great waterfall of Kegon-no-taki has a height of 250 feet. From the shores of Chuzenji rises the sacred mountain of Nantai, which is about 8,000 feet above sea level. This mountain is ascended every year by thousands of pilgrims, and at its base are long barrack-like huts to accommodate the people during their visit.

Still further above Chuzenji is the Yumoto Lake, it being over 4,000 feet above sea level. These two lakes are favourite summer resorts of the foreign ambassadors, being ideal places, as boating, fishing, bathing, and mountain climbing can be indulged in during the hot season of the year.

As a health restorer, and as a revealer of bits of Old Japan, I have the greatest confidence in recommending a walking tour through some of the many charming districts of the Land of the Rising Sun.

THE DEATH OF MR. F. W. W. HOWELL, F.R.G.S., IN ICELAND.

Communicated by Mr. JOHN R. NEWBY.

July 22nd, 1901.

I NOTICE that in the *Manchester Guardian* of Saturday last a passing allusion is made to the death of Mr. Howell, F.R.G.S.; referring to the conversation I had with you, since my return from Iceland, I send you copy of the notes I made in that island at the time I was told of the mishap:—

“The accident occurred in the north of the island, on Wednesday, the 3rd inst., and resulted in the death of one traveller and the temporary disablement of a second. A party of five friends from the South of England (consisting of Mr. Kingston, cigar manufacturer, of London, and his wife; Miss Fox, of Clapham; and Mr. and Mrs. Gifford, of Oaklands, Chard, near Exeter) engaged the services of Mr. Frederick W. W. Howell, F.R.G.S., the well-known mountaineer, agent for Icelandic travel of Dr. Lunn and Mr. Perowne, and (under his guidance) left the port of Leith, N.B., on the 15th ult., in the Royal Danish United Steamship Company's boat ‘Ceres,’ arriving at Husavik on the north coast of Iceland (lat. 67°, long. 17°) on the 22nd of June. Here the five (none of whom had any previous experience of Icelandic travel) landed with their leader, sending their heavy baggage on by the ‘Ceres’ to Reykjavik, the capital of Iceland, on the south-west coast (lat. 64°, long. 22°), from which port they had made arrangements to sail for Leith on Friday, the 12th inst., by the steamship ‘Botnia,’ due in Scotland on the following Wednesday. On arriving at Husavik the travellers secured the services of three guides, intending to travel overland to Reykjavik. While journeying from Husavik to Akureyri (lat. 65°50', long. 18°), along one of the best roads in Iceland, Miss Fox, a stout lady—who has seen more than five decades, and had no experience whatever in riding, and who was specially escorted by Mr. Howell—fell from her pony, and so injured her right arm that she was compelled to remain at Akureyri, this accident probably saving her life. The remainder of the party continued their journey in a south-easterly direction, passing below the southern side of Myrka Jökull, and ultimately arrived at the village of Mikhboer (lat. 65°50', long. 19°), situate on the east bank of the formidable glacier-fed river Hjerodsvatn (Waters of the District), here flowing through grassy flats below high cliffs—which stream has caused the death of many a traveller. At the village they engaged the services of a couple of local guides to assist them in crossing the torrent, which in the summer time (rushing, as it does, into Skagafjord, on the north coast of Ultima Thule, pouring into the Arctic Ocean the outflow of numerous tributaries descending from the Hofs Jökull and other ice mountains) is, as stated in Murray's Guide, ‘very difficult to ford if swollen.’ Disregarding the urgent wishes of the five guides that the travellers and their ponies should cross over to the east bank of Hjerodsvatn by the ferry-boat, and not heeding the strongly-expressed opinions of the guides from Husavik,

and the local guides, that it was extremely dangerous to attempt to cross the rapids *on horseback* owing to the shifting nature of the sandbanks when the river was in flood, the four tourists and their leader essayed to ford. Mr. Howell—who suffered from deafness—was soon in trouble, his pony having got out of its depth in one of the numerous pools in the river sand formed by the currents; apparently he failed to hear the shouts of the guides, who urged him to head his steed upstream, instead of riding with the current; and, when his pony commenced to climb up the bank on the western side of the pool, it was noticed that its rider—disregarding the advice given by Mr. William George Lock, F.R.G.S., in his well-known work, ‘A Guide to Iceland,’ and by all other writers on Icelandic travel, that ‘in fording rivers on horseback the reins should be slack, and the pony allowed to pick its way across at its own pace’—was seen to tighten his reins, the consequence of which was that the pony reared, and its rider was thrown backwards into the Hjerodsvatn, and not seen again alive. The remainder of the travellers, after much difficulty (assisted by the guides), reached the western side of the torrent in safety, as did the pony of the deceased. The body of Mr. Howell was subsequently found lying on a sandbank not far below the point where the accident occurred. After an exhaustive inquiry as to the cause of the disaster, held by the sysle-man for the Hunavatus Sysla, the body was duly interred. The four tourists and their ponies re-crossed to the east side of the Hjerodsvatn by the ferry, and returned to Akureyri, where they rejoined their disabled comrade, who was fortunately not under the personal guidance of the conductor of the trip at the time the river accident occurred.

“Mr. Howell was the first Englishman who made the ascent of the Oræfa Jökull (6,425 ft., lat. 64° , long. 17°); this he accomplished in the year 1891, starting from the parsonage at Sandfell; eight years later he crossed the Lang Jökull (lat. $64^{\circ}60'$, long. 20°), a lecture on which journey he delivered in the Technical School at Peel Park last winter. He published in 1896 an illustrated book called ‘Icelandic Pictures.’”

OCEAN RAINFALL BY RAIN GAUGE.

I BEG to draw the attention of those interested in Arctic and Antarctic exploration to a report on “Ocean Rainfall” by me, and communicated to the Geographical Societies of Manchester and Liverpool in 1897, and others, *apropos* of the desirability of registering the rainfall at sea on board ship in high latitudes in both pre-Polar regions.

I find that the highest latitudes recorded in the report extend to North Atlantic 52° , North Pacific 40° , South Atlantic 51° , South Indian 50° , South Pacific 53° , so that there is left about 20 more degrees up to 70° West and South about for further registration of rainfall at sea.

This should be undertaken by means of marine rain gauges only, and not by days or hours of duration of fall; and they should be provided with snow tops to take in that form of likely precipitation.

W. G. BLACK, F.R.C.S.E., F.R.M.S.

NEW BOOKS.

AN ANTARCTIC VOYAGE.

"BULLETIN SOCIÉTÉ ROYALE BELGE DE GÉOGRAPHIE, 1900," No. 1.
 Editor, M. J. DUFIEF, Secrétaire-général. 230 pages. Three
 maps and a number of illustrations.

Do. do. No. 5. 168 pages. With inset maps and a number of
 illustrations.

THIS is a somewhat elaborate account of the work of the Belgian Antarctic Expedition, under the command of Lieut. A. de Gerbache, of the Belgian Navy. He was assisted by Lieut. G. Lecointe, MM. Amundsen, Melaerts, Somers, Max, Van Rysselberghe, Lieut. Danco, M. Arcowski, Dr. Cook, and others. Some of these assistants have given lengthy reports on the special subjects of study committed to them. The scientific work of the expedition is reported upon by Lieut. Lecointe. The hydrography of the "Straits of Belgica," and the Magnetic and Astronomical Observations in the Austral Zone are reported upon by Lieut. Lecointe. The Physical Geography of the Antarctic Visited by the "Belgica" is reported upon by Mr. Arcowski. The Animals and Plants of the Antarctic are reported upon by M. Racovitza. The expeditions which have preceded that of the "Belgica" in circumpolar regions, and a summary of the voyage of the "Belgica" is reported by the leader of the expedition. The whole is supplied with most interesting maps, and is profusely illustrated with views and sketches of great value. The account is one which will be of great assistance to the following expeditions, and will well repay the earnest attention of those who have the good fortune to read it. The months spent in the Antarctic ice and seas have been spent in a profitable way, and we have much pleasure in especially calling attention to this account of the voyage.

THE INTERNATIONAL GEOGRAPHY. By Seventy Authors. With 488
 Illustrations. Edited by HUGH ROBERT MILL, D.Sc. 1,052pp.
 Index and Table of Contents. London: George Newnes, Limited,
 1899. Price 15s.

THIS is a valuable book, and one which few earnest teachers of Geography can afford to be without. An immense mass of information is compressed into the compass of one volume, and most of it is clear and accessible. The connection between the physical conformation of a country and its political and social histories is kept well before the reader. At the same time, the book is disfigured by many inaccuracies, which, even if dealing with unimportant matters, bring incalculable discredit on a teacher and weaken his authority. The error, so often exposed, of thinking that Robinson Crusoe was wrecked on Juan Fernandez is repeated, and so is the time-honoured confusion between Mercator's and the Cylindrical Projections. The

maps—or, rather, topographical diagrams, for they can scarcely claim the former title—are numerous, but too small to do much else than ruin the reader's eyesight, and at times unconnected with the adjacent text. A square sprinkled with dots may be a graphic way of representing density of population, but the reader might be spared the trouble of counting them. In a book which has come from so many different hands, differences of style and expression are naturally to be expected; but an English editor should have taken care to revise the diction of foreigners. The style of writing in the chapter on the United States of America is terribly obscure, and the grammar (to an English schoolmaster) simply atrocious. Here are some examples:—

“Their fertility, coupled with modern means of transportation, have seriously affected the commerce in food supply of the world.”

“The loose texture of the strata of the plains *exert* an influence on the behaviour of *its* rivers.”

“The flood-plained valleys of the larger streams have little relation to the *cuestas*, but *traverses* them irregularly.”

“The symmetrical cinder cones hardly *affected* (*sic*) by erosion.”

After these, we can scarcely feel surprised that a Continental writer is allowed to say, “Near Brugg *stands* the ruins of Habsburg Castle . . . and *those* of Vindouissa.” But whatever allowances are made when foreigners express themselves in our difficult tongue, all Oxford men must shudder when they find that an official teacher of Geography at their classic University is so regardless of Latinity as to debase *desiccare* into *dessicate*.

In connection with the commercial statistics an explanatory note might well be inserted. Dealing with the goods sent from France to the United Kingdom, we are told that France exports goods of the value of £39,600,000 to the United Kingdom, when we are reading the chapter on France; but when we turn to the chapter on the United Kingdom we find the imports from France valued at £50,000,000. A similar apparent discrepancy occurs with every pair of countries that may be chosen. Of course, the trained economist thinks at once of the enhanced value of the goods in their new place, the cost of carriage, insurance, tolls and duties, and merchants' profits, but many a reader (for the question has been set in an examination) is puzzled.

Most of the blemishes just noticed may easily be expunged from a new and revised edition, when the book—if supplemented by a good physical and political atlas—will be almost indispensable to the teacher and a useful companion to every studious reader of Geography.

STANFORD'S NEW OROGRAPHICAL MAP OF EUROPE. Compiled under the direction of H. J. MACKINDER, M.A., Reader in Geography in the University of Oxford. Four sheets: 60 by 54 inches; 63·1 miles to an inch (1 : 4,000,000). Price: coloured sheets, 16s.; mounted on rollers and varnished, 20s.

THIS map has been compiled with care from original materials, chiefly Government surveys. It is primarily intended to depict the physical features of the Continent, but by the employment of the device of grey,

almost transparent, lettering, many names have been inserted without spoiling the graphic effect of the colouring. The contour lines have been drawn at the same intervals above and below the sea level, with the result of rendering visible the true contrast of such positive and negative features as the Armenian Plateau and the Biscayan Deep. The confusion of ideas which often follows on the cursory study of maps wherein the lowlands are shown in one colour and the uplands in another, has been avoided by the employment of deepening tints of only one colour on the land, and of another on the sea. The relative volume of the rivers has been carefully considered, and, owing to the subdued lettering, the courses of such streams as the Volga and the Danube obtain their proper significance. The scale is a "natural" one, each feature on the map being one four-millionth of its length upon the ground. With the object of showing the articulation of Europe to Asia, of completing the outline of the Mediterranean, and of indicating the sunken ridge connecting Britain with Iceland and Greenland, the map has been made to include a greater area than is usual in maps of Europe.

The frontiers of countries have been marked by distinct, though subordinate, broken lines for the purpose of teaching their relation to the physical features, and although it has not been possible to attach a name to every city in certain crowded districts, yet every town of a given minimum population has been indicated by a symbol, so that it may be possible to compare the number of towns in equal areas of different countries. Thus the town cluster of Lancashire and the West Riding has been shown without interference with the relief effect of the Pennine Range. On account of their value as practical commentaries on the land relief, some of the chief canals have been indicated, including that which is proposed between the Rhine and the Elbe.

No selection of contours which did not give an undesirable complexity to such a map as this would suffice to bring out with equal distinctness all the important features. Many ridges which have a local significance, but fail to appear adequately on the surface of the larger features, have been indicated by the careful placing and alignment of their names, as in the case of the mountains defining Bohemia.

The following are among the features of European geography which find conspicuous illustration in the scheme of contours which has been selected:—

1. The great plain of European Russia, with submerged extensions under the Baltic, the White Sea, the Sea of Azov, and the Bay of Odessa.
2. The large area of the Ural Range, as compared with its height.
3. The deep pan in the southern end of the Caspian Sea and the shallow northern end of that lake, together with the wide area of the neighbouring region which is depressed below the level of the Black Sea.
4. The appreciable portion of the Caucasus Range which rises above fifteen thousand feet, as compared with the inappreciable areas of similar height in the Alps.
5. The wide area of the Armenian Plateau, which, rising above ten thousand feet, finds no counterpart in any European plateau.
6. The comparative depth of the Mediterranean Basins, as compared with the shallowness of the North and Baltic Seas.

7. The plateau character of Asia Minor, of Barbary, and of Spain.
8. The essential unity of the shallow northern half of the Adriatic Sea and the Lombardic Plain.
9. The great depth of the Biscayan Deep, which is in effect the negative counterpart of the Armenian Plateau.
10. The essential unity of the plain of the Garonne and the Biscayan Deep, together with the "dry strait" of Carcassonne, leading through to the Gulf of the Lion.
11. The absence of lowlands in Spain, except along the south-western margin, where are Portugal and Andalusia.
12. The low-lying and basin character of Hungary, together with the plateau character of Transylvania.
13. The similarity of the great mountain curves formed (*a*) by the Transylvanian Alps and the Balkans, and (*b*) by the Sierra Nevada and other mountains of Southern Spain and the mountains of Barbary. Both curves are notched at their western ends, the one by the Iron Gate of the Danube, the other by the Strait of Gibraltar.
14. The deeply-cut valleys of the Rhone and the Rhine.
15. The plain of Northern Germany and Gaul, rising into the tablelands of Central France and Bavaria.
16. The shallowness of the seas connecting Britain with the Continent of Europe.
17. The essentially plateau character of Iceland.
18. The plateau and fiorded character of Norway.
19. The remarkable Norway Deep, curving round the Naze into the Skager Rak.

The following elevations of land are shown by varying shades of brown:—

More than 15,000 feet above sea level.				
From 10,000 to 15,000	„	„	„	„
„ 5,000 „ 10,000	„	„	„	„
„ 1,000 „ 5,000	„	„	„	„
„ 500 „ 1,000	„	„	„	„
„ sea level „ 500	„	„	„	„

Land below sea level is coloured olive green.

The following depths of the sea are shown by varying shades of blue:—

From sea level to 500 feet below sea level.				
„ 500 feet „ 1,000	„	„	„	„
„ 1,000 „ „ 5,000	„	„	„	„
„ 5,000 „ „ 10,000	„	„	„	„
„ 10,000 „ „ 15,000	„	„	„	„
„ More than 15,000	„	„	„	„

Towns of 50,000 inhabitants and upwards, and places of historic and other interest are marked by symbols, and the chief canals are given.

We have had a copy of this map placed in the Library, and we very heartily welcome it. It is one which will at once appeal to all teachers. It is very creditable to the editor and publishers, and the price upon it is within the reach of all school managers.

METEOROLOGY OF AUSTRALASIA.

STANDARD WEATHER CHARTS, FROM JANUARY 1 TO JANUARY 31, 1898.

Meteorogram at Kosciusko and Merimbula, No. 1, for January, 1898.

Chief Weather Bureau, Brisbane, Dec. 22, 1899.

My Dear Sir,—Best thanks for your letter of 4th ultimo. I am glad that your Society is interested in my work, and trust that with the small diagrams you received also the Kosciusko-Merimbula Meteorogram. It will be of *great* assistance if I am favoured with an expression of opinion relative to the Kosciusko and Merimbula Observatories, since the work is unique in the entire Southern Hemisphere. We are sorely pushed *re* funds in the matter of the publication of the text and statistical tables which I intend to bring out monthly, and they are sadly delayed through no fault of mine whatever. An expression of opinion from you would have great weight with the unscientific “powers that be” in Australasia * * *
* * * * for people here in these Colonies in scientific matters *are most apathetic*, and at times it is *very disheartening and depressing indeed*.

With all good wishes for the New Year to yourself personally and also to your Society, with kind regards, believe me, yours sincerely,

CLEMENT L. WRAGGE,

Government Meteorologist of Queensland,
Supt. of Kosciusko Observatory.

Eli Sowerbutts, Esq., F.R.G.S., Secretary,
Manchester Geog. Soc., Manchester.

Chadwick Museum, Bolton, Nov. 26, 1900.

Dear Mr. Sowerbutts,—I thank you very much for forwarding me the daily and monthly series of charts issued by Mr. Clement Wragge. The amount of labour involved in the preparation of the monthly chart, after all the data have been got together, is stupendous to convey so much information on so small a space. Of what inestimable value such charts as these, and the issuing of the daily charts showing the meteorology of a continent at a glance, both to the shipping and agricultural interests of the Colonies, and also very valuable to those who study the public health. Such public services deserve, and in time will no doubt receive, appreciation and support.

The importance of the observations on Kosciusko, as compared with lower stations, will help to solve many weather problems, and may have even greater beneficial results on their solution than our own Ben Nevis observations. Taking the Meteorogram for January as an example, how strangely the isobars and thermobars vary—the former intercrossing often, while the inconstancy of relationship of the temperature of the two stations is very noticeable in the thermobars.

As to the *size* of the daily charts, I consider they are quite large enough. They are on a rather more contracted scale than those of the British weather charts ($10^{\circ}=1''$, whereas ours are on a scale of $5^{\circ}=1''$), still the $0^{\circ} 1''$ isobars are clearly distinct even where the gradients are steepest.

I enclose you the charts and Mr. Wragge's letter.—Yours faithfully,

W. W. MIDGLEY, F.R.Met.S.

PROCEEDINGS OF THE SOCIETY.

MAY 1ST TO JUNE 30TH, 1901.

The 576th Meeting of the Society was held in the Library, on Tuesday, May 14th, 1901, at 7-30 p.m. In the chair, Mr. HARRY NUTTALL, F.R.G.S., Vice-Chairman of the Council.

The Minutes of the previous meetings were read and approved.

The Rev. J. W. HEYWOOD, of Wenchow, addressed the Society on "Six Weeks in Japan," illustrating his address with a fine series of Japanese photographs, lantern slides, etc.

Mr. J. HOWARD REED moved a very hearty vote of thanks to Mr. Heywood for his most interesting address, and added some incidents of his own visit to Japan. Mr. LEWIS seconded the motion, which was carried, and to which Mr. HEYWOOD responded.

The 577th Meeting of the Society was held in the Library, on Tuesday, May 21st, 1901, at 7-30 p.m. In the chair, Mr. HARRY NUTTALL, F.R.G.S., Vice-Chairman of the Council.

The Minutes of the previous meeting were read and approved.

The following presentations were announced:—

Presented by the Author: "Roman Manchester," by Charles Roeder, 1900. Presented by the author, "The Population of Uncivilised Countries," by J. Scott Keltie, LL.D., 1900. Presented by the Author: "The Rise and Fall of Smørenburg, Spitsbergen," by Sir Martin Conway. Presented by Mr. L. H. Woods: "An Illustrated Guide to Belgium"; "An Illustrated Guide to Spa"; "The Standard Picture Guide to Canterbury, Bath, Leigh, and Southend"; and a large number of other papers for distribution. Presented by the Royal Geographical Society of Australia (South Australia Branch): China and the Far East: A Study in Political Geography," by Rev. Dr. Eitel, M.A., Ph.D. (Three copies.)

The following was also added to the Library: Catalogue of the "Bowes" Collection of Japanese Art, sold at the Museum Galleries, Streatham Tower, Princes Road, Liverpool, by Messrs. Branch and Leete, Monday, 6th May, and following days.

THE MUSEUM.

It was announced that the New Commercial and Geographical Museum is now open, in which is displayed the "large collection" given to the Society by various members and others to form the foundation of a Geographical and Commercial Museum. The collection is one of unique interest, and is being constantly enlarged. Members are respectfully requested to call and examine the Museum. Some parts of the collection may be lent to members on application.

Correspondence was read from the following:—

Mr. J. Howard Reed, Mr. Robert Barelay, J.P., Mr. F. Ashworth, Mr. R. Hope Brown, Mr. George P. Woolley, Mr. T. N. Kelynack, M.D., Alderman William Healey, J.P., Councillor D. Healey, Mr. W. H. Buckley, J.P., Colonel J. Pilcher, Mr. Henry T. Crook, Mr. Fritz Reiss, Mr. H. Woolley, Rev. L. C. Casartelli, M.A., Mr. J. E. King, M.A., Prof. Alfred Hopkinson, Mr. J. G. Groves, M.P., Sir H. F. de Trafford, Bart., Lord Mayor of Manchester, Mr. G. T. Cook, Mr. Isaac Forth, Mr. Walter Laverton, Mr. John R. Newby, Mrs. Mellor, Mr. William Mather, M.P., Mr. W. J. Cunliffe, Mr. C. Battersby, Alderman Joseph Leigh, M.P., Alderman Sir W. H. Bailey, J.P., His Worship the Mayor of Salford, Mr. A. J. Balfour, M.P., Mr. W. W. Midgley, Mr. Alfred Lea, Professor W. Boyd-Dawkins, His Grace the Duke of Devonshire, K.G., Mr. George Thomas, Alderman J. G. Mandley, Mr. William Bradshaw, Colonel Sir James Willcocks, K.C.M.G., D.S.O., Mr. H. H. Smith-Carington, Rev. S. A. Steinthal, F.R.G.S., Mr. James D. Wilde, M.A., Mr. C. Davis, Mr. R. Bateman, Mr. Mehl, Mr. C. A. Johnston, Mr. W. Symonds, Mr. Sydney L. Keymer, F.R.G.S., Councillor Thomas Hassall, Mr. T. C. Middleton, J.P., Alderman B. Robinson, Mr. J. C. Blake, F.R.G.S., Mr. H. Philips, J.P., Royal Geographical Society, Mr. F. J. Payton, Mr. E. W. Greg, F.R.G.S., Glasgow Philosophical Society, Mr. H. Nuttall, F.R.G.S., Mr. S. H. Brooks, F.R.G.S., F.I.Inst., Mr. Joel Wainwright, J.P., Mr. Lawrence Austin, Mr. Edward Watkin, Mr. E. Milner, and the Royal Scottish Geographical Society.

Mr. J. R. SMITH addressed the Society on "Florence," referring to the topography, history, architecture, and art of that famous city, and illustrated his address with a fine collection of specially-prepared lantern views.

Mr. J. H. LEWIS moved a very hearty vote of thanks to Mr. Smith for his interesting lecture. Mr. GOODWIN seconded, and it was carried.

Mr. SMITH responded.

The 578th Meeting of the Society was held in the Dining Room of Talbot's Restaurant, Bolton, on Saturday, June 15th, 1901. In the chair, Mr. J. D. WILDE, M.A., one of the Honorary Secretaries.

A party of about 30 members of the Society, including a few ladies made the journey to Bolton. They first proceeded to the Chadwick Museum of Natural History, in Queen's Park, where they were received by Alderman J. T. Brooks (Chairman of the Parks Committee of the Town Council), and Mr. W. W. Midgley (Curator of the Corporation Museums and Art Gallery). This was the first occasion of the Manchester Geographical Society visiting the Chadwick Museum, though lectures have been delivered under its auspices in the Mawdsley Street Technical School (also belonging to the Corporation), at Bolton. Alderman Brooks and Mr. Midgley escorted the visitors through the building, when they made a minute inspection of the exhibits.

Mr. MIDGLEY gave a short history of various objects contained in the Museum. Its origin, he said, was due to the generosity of a townsman of theirs who flourished in Bolton as a practitioner in medicine and surgery, and who, on his death, bequeathed to the Corporation a sum of £5,000 for the establishment of a Natural History Museum. That gift was the means

of natural history obtaining a footing in Bolton. The Corporation supplemented that bequest, the Museum was established, and through the activity of the Chairman of the Museum—the late Sir Benjamin Dobson—who was chairman at that time, and now by Alderman Brooks, it had steadily continued to grow.

About an hour and a half was spent in the tour of the Museum and the adjacent Park, the visitors expressing their pleasure at what they had seen. They were sorry that time did not permit of a visit being made to the Thomasson Art Gallery in Mere Hall Park, as had been contemplated; but they intimated that they would probably come again for the purpose.

Mr. J. HOWARD REED moved that the best thanks of the Society be tendered to Alderman Brooks and Mr. Midgley. Mr. J. R. SMITH seconded, and the motion was carried and responded to.

An adjournment was afterwards made to Talbot's Restaurant, Deansgate, where tea was partaken of, on the invitation of the "Victorians," and a conference was held between the various representatives (including secretaries of affiliated societies) with the object of arranging for the next season's lectures and for further work by the Museum. Mr. J. D. Wilde (one of the Honorary Secretaries) was chairman of the meeting, at which a letter of apology for inability to attend was read from the Rev. S. A. Steinthal (Chairman of the Council of the Manchester Geographical Society). The arrangements made at the conference were of a tentative character, the gathering being held chiefly with the object of bringing the secretaries of the affiliated societies together for personal consultation as to the operations to be carried on.

The 579th Meeting of the Society was held at Balshaw's School, Leyland, on Thursday, June 20th, 1901, at 6 p.m. In the chair, Mr. D. A. LITTLE.

The members left Victoria (No. 6 platform) by the 9-5 a.m. train. On arrival at Leyland, carriages were taken and a delightful drive of about sixteen miles to "the richest City in Chrisendom"—Ribchester. At Ribchester, the party had lunch at the White Bull Hotel, and inspected the recently-discovered Roman remains. The carriages returned to Leyland through Longridge, Ribbleson Moor, and Preston. Tea was provided at Golden Hill, Leyland. The party was led by Mr. J. D. Wilde.

Very hearty thanks were given to the Vicar of Ribchester for his kindly allowing some remains at the vicarage to be seen, and for the information he gave of the excavations of Roman remains.

The Minutes of the previous meetings were read and approved.

The following presentations were announced:—

Presented by the Royal Geographical Society: Sketch Map of part of "South-Western China" (1898-1899); Map of "The Sobat River" and part of "The Blue Nile" (1900); Map of part of "South Victoria Land" (1898-1900); Sketch Map of a journey from "Addis Ababa to the Sobat River" (1899). Presented by the Manchester Ship Canal Co.: "Official Sailing List," and copies for distribution (May). Presented by M. le Ministère de la Marine et D'Outremer Lisboa 3rd bureau: "Album de Estatistica Graphica dos Caminhos de ferro Portuguezes das Provincias Ultra-marinas" (1898). Additions to Library: "Life with the Esquimaux," by Captain C.F. Hall (2 vols).

Presented by Norges Geografiske Opmaaling: Landkarter, "Topografisk Kart over Kongeriget Norge" (1 ÷ 100,000, 1C, 3D, 26D, 32A, 32D, 33A, 33C, 55B, H and J 12, H16, K19, Y5, Z3, Z4, O3, O4); "Geologisk Kart" (1 : 100,000, 25D); Kystkarter, "Spezialkart" (Bi, 1:50,000, No. 37i, 43i, 52, and three Index Maps).

The election of the following new members was announced:—

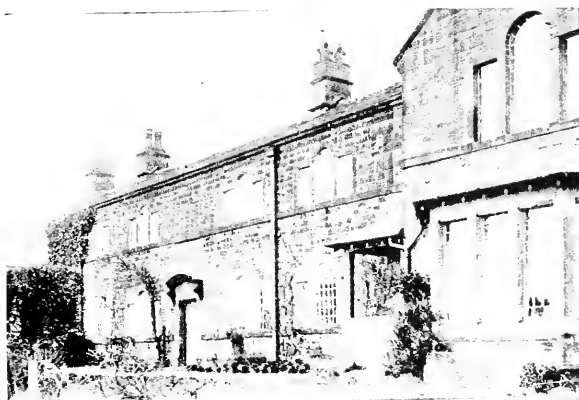
Colonel Sir James Willcocks, K.C.M.G., D.S.O., Mr. W. Welsh, Mr. Edward Watkin, Mr. Edward Peel Dewhurst, Mr. Harry H. McFarlane, Mr. R. J. Riley, Mr. William Ferguson, Mr. Alfred Simpson.

Very hearty thanks were given to the Governors of Balshaw's School, and to Mr. and Mrs. Wilde, for guidance and help to the members on this occasion. Mr. WILDE responded.

The following remarks from the *Preston Herald* are interesting:—

MANCHESTER GEOGRAPHICAL SOCIETY.

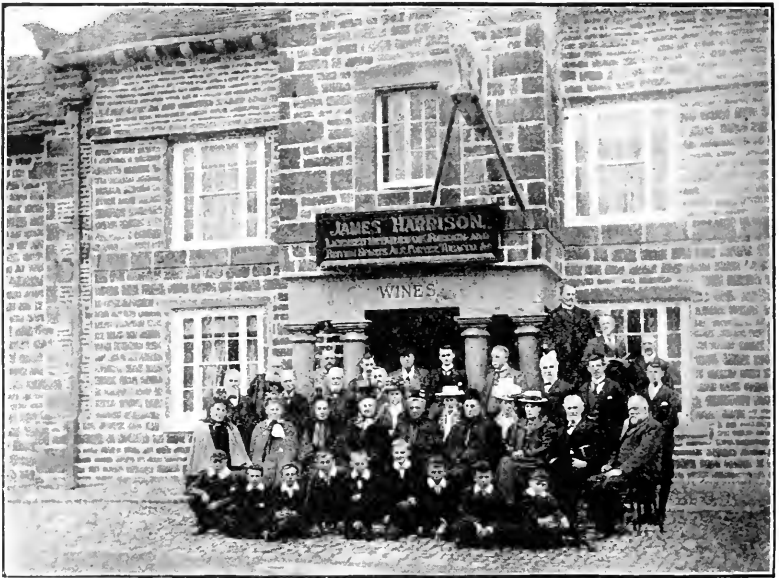
VISITS TO LEYLAND AND RIBCHESTER.



BALSHAW'S GRAMMAR SCHOOL, LEYLAND.

The Manchester Geographical Society, which seeks to popularise and foster the study of geography with a view to its utilisation in various departments of life, usually devotes the summer to a series of excursions by which members can learn the geography of the country in a very practical way and study its features at first hand. Of course, they do not confine themselves strictly to acquiring a knowledge of the physical features of the country. Their study includes inquiry into the astronomical and the archæological. In pursuance of this object about thirty members of the Manchester Geographical Society paid a visit to Leyland and Ribchester on Thursday. Leaving their smoke-begrimed city by the five minutes past nine o'clock train, the visitors, who were accompanied by the Secretary of the Society, Mr. E. Sowerbutts, F.R.G.S., reached Leyland shortly after ten o'clock, where they found conveyances awaiting to take them to Ribchester. Crossing the railway bridge which divides Leyland and Farington, the rows of pretty houses in this little village were favourably

commented upon. These were soon passed, however, and then the party found themselves in a beautiful archway formed by the overhanging branches of the stately trees which lined the road. Then stretching away to the right in endless succession were deep waving fields, rich in colour and yield, while the dark hedges and clumps of trees introduced a darker shade, which in the brilliant sunshine was most effective. Mr. J. D. Wilde, Head Master of Balshaw Grammar School, Leyland, a medallist of the Royal Geographical Society, and a Hon. Secretary of the Manchester Geographical Society, pointed out the various points of interest on the route. From the grateful umbrage and beautiful foliage the party were soon wheeled into the midst of bricks and mortar. This was Bamber Bridge, which claimed little attention from the visitors. The old-fashioned houses at Walton-le-Dale, however,



AT THE WHITE BULL HOTEL, RIBCHESTER.

as befitted their age, were looked at more reverently, as was also the fine old church on the top of the brow. Here the first sight of the Ribble was obtained, and the magnificent view of wood and water was only circumscribed by the smoky heights which represented Preston. Then on amidst a changing panorama which revealed new beauties at every turn, till the Five-Barred Gate was reached. Here a halt was called to give the horses some liquid refreshment, after which the journey was resumed. Following the Ribchester road, the sightseer was gratified to note the progress of the crops, and the sweet smell of newly-mown hay. At length Ribchester came in view. Built on the slope of a hill, with the River Ribble meandering by, its situation is simply charming. Ribchester at once gains the favour of the visitor, a favour which is augmented when a closer inspection reveals all

its old-world simplicity and beauty. The streets are narrow, the houses are of the quaint and substantial architecture of the old days, and there is an absence of that bustle and excitement and animation which are characteristic of our modern towns and this commercial age. Before proceeding to "do" the sights of Ribchester, the visitors had lunch at the White Bull Inn. Thereafter Mr. Wilde, in his capacity of "guide, philosopher, and friend," conducted the party along the bank of the river, where was pointed out the site of the old Roman camp. Ribchester, it seems, was for long the traditionary site of an ancient Roman city, but the excavations which had taken place in recent years proved that this was not the case. Ribchester had certainly been the site of an old Roman fort, which guarded the confluence of five roads, and the discoveries which had been made showed



THE PARISH CHURCH, RIBCHESTER.

three of its four walls. One interesting feature of this camp was that one of its corners was in the middle of the stream. It was not built there by the Romans, and this fact shows how the Ribble had travelled across the valley. Part of the wall was standing in the river up till 1866, but in that year a spate washed it down. Proceeding to the rectory, the party was kindly received by the rector, the Rev. E. Harries, M.A., who placed at its disposal every facility for inspecting the relics which the recent excavations had obtained from the site of the Roman camp. There were portions of Roman pillars, pieces of carved stones, and an altar in the rectory grounds, and several other interesting objects which had not yet been classified or named. It was remarked by Mr. Wilde, in the course of his explanations, that the people on the spot did not encourage the excavations, for the very

natural reason that the objects found were carried away from the district. Some were in Blackburn, in Preston, in Manchester, and some were in London. There was no local collection, and the opinion which he expressed that a local museum should be obtained for the preservation of these was strongly endorsed by Mr. Sowerbutts. The old church next claimed the attention of the members of the Society. Dating from the twelfth century, the sacred building is a very interesting specimen of the architecture of that period. Unfortunately, however, its appearance has been spoiled by the introduction of two hideous windows in the gallery, which, as Mr. Wilde remarked, must have been put in by people with more regard for light than architecture. The principal architectural features in the church were pointed



INTERIOR OF THE PARISH CHURCH, RIBCHESTER.

out. The bells were examined, as were also the curiosities in the way of hat-hooks which were hung round the building. The sedilia—which is the technical name for those quaint arched seats near the altar on which the monks sat when waiting their turn to officiate at the services—the piscina, where the washings and dregs of liquor were poured so that they would run down into the foundations and sanctify them; and the hagioscope, or the leper's squint, through which those afflicted viewed the service from outside the church—all these and others were objects which carried us back in thought to the good old days when life was perhaps more picturesque, but scarcely so enjoyable as nowadays. A visit to Stydd Church was also included in the programme, but the rain, which had now begun to fall, caused it to be abandoned. Returning to the hotel, the conveyances were again boarded,

and the return journey commenced. The horses were headed in the direction of Longridge, but the wealth of sylvan beauty which this route disclosed—the grassy knolls, upland heaths, and sheets of rippling blue water—were too often shut off from view by the necessary shelter of an umbrella. The mists were gathering on the hills, and one could only guess at the beauties they were hiding. Longridge passed, it was a straight run into Preston, and then on to Leyland, where the party drew up at Balshaw School. Here Mr. and Mrs. Wilde dispensed hospitality in the most approved manner, and earned the gratitude of all who were the recipients. An enjoyable tea, with other culinary dainties, was provided for the delectation of the guests, and under its cheering influence the spirits, which before were somewhat dampened, revived. Speeches and congratulations all round then became the order of the evening, and made a very happy termination to the events of the day.

Mr. Wilde, who was warmly thanked for all the trouble and care he had taken in making and carrying out the necessary arrangements, in reply to a vote of thanks, alluded to the day's proceedings as the practical way of learning geography. He said that our country, and still more our own county, deserved study on the spot. He thoroughly approved of the Geographical Society devoting its summer term to these excursions. Already they had done the Ribble Valley pretty thoroughly. They had been to Pendle Hill, to Chatburn, to Clitheroe, to Stonyhurst, to Hoghton, to Preston Docks, and now they had taken the missing link at Ribchester. Concluding, he pointed out that as Hon. Secretary of the Society, and headmaster of that school, he was putting into practice the work which the Geographical Society had been urging upon Manchester during the past eleven years.

Votes of thanks were also accorded to the Rector of Ribchester, and to the Lancashire and Yorkshire Railway Company.

Subsequently the company inspected the models which had been made by Mr. Wilde and one or two of his pupils in their study of physical geography. Special attention is given to this subject in the Balshaw School, and when one saw the ingenious models prepared by Mr. Wilde, which included a representation of the Ribble Valley, there could be no doubt as to the efficacy of the methods employed and the excellence of the results likely to be obtained. In fact, it is the proper way of teaching geography, and gives the pupil an idea of the relation of one place to another, which a study confined to maps cannot do.

The Lancashire and Yorkshire Railway Company having kindly agreed to stop the 8-45 train from Preston to Manchester at Leyland for the members of the Society, they joined that train, and returned home well pleased with the day's outing.

The 580th Meeting of the Society was held at Finchwood, Marple, on Saturday, June 29th, 1901, at 6-30 p.m. In the chair, the Rev. S. A. STEINTHAL, F.R.G.S., Chairman of the Council.

Under the guidance of Mr. JOEL WAINWRIGHT, J.P., the members (by permission of J. Bradshaw-Isherwood, Esq., J.P.) visited Marple Hall, and Mr. Wainwright made this a specially interesting occasion. The

members left the train at Rose Hill, and had carriages from Rose Hill to Marple Hall and Finchwood.

The SECRETARY read a copy of the address presented by the Royal Geographical Society of Australasia to His Royal Highness the Duke of Cornwall and York, K.G., on his visit with Her Royal Highness the Duchess to Australia:—

[COPY.]

ROYAL GEOGRAPHICAL SOCIETY OF AUSTRALASIA.
QUEENSLAND.

To H.R.H. the Duke of Cornwall and York, K.G., etc., etc., Hon. President Royal Geographical Society of London; President Manchester Geographical Society.

Sir,—May it please your Royal Highness,—On behalf of the Council, Fellows, and Members of the Royal Geographical Society of Australasia, Queensland, we are desirous of giving expression to our very deep feeling of pleasure at the safe arrival of Your Royal Highness and of Her Royal Highness the Duchess of Cornwall and York on the Australian shores, and we heartily extend to you, as the august representative of the parent and sister societies in London and Manchester, a most cordial welcome to Brisbane.

In expressing our profound loyalty and devotion to the King's Most Excellent Majesty and to the Royal Family, we earnestly pray that under the guidance of Divine Providence Your Royal Highness may long be spared to further—by the influence of a gracious patronage—the interests of Geographical Science, so largely developed throughout the world during the glorious reign of Her Majesty Queen Victoria, and we sincerely hope that the future will be pregnant with many pleasurable reminiscences of your present visit to the Australian Commonwealth.

(Signed) HUGH M. NELSON, *President.*

May 20th, 1901.

J. P. THOMPSON, *Hon. Sec.*

He also read a communication from L'Union Coloniale Française on the formation of an Institute of Colonial Medicine in Paris, which requests co-operation.

Mr. JOEL WAINWRIGHT read some interesting extracts from an old M.S. magazine written some years ago by inhabitants of Marple and early friends of Mr. Wainwright.

Mr. D. A. LITTLE moved a very hearty vote of thanks to Mr. Bradshaw-Isherwood, to Mr. Wainwright, and to Miss Winterbottom and the ladies of Finchwood, for their help and kindness to the members on this most interesting day.

Mr. J. S. REID seconded the motion, which was supported by Mr. W. JOHNSON and others, and carried.

Mr. WAINWRIGHT responded.

ANNUAL MEETING.

The Annual Meeting of the Society was held in the Library, Monday, May 6th, 1901, at 12 o'clock noon. In the chair, Mr. HARRY NUTTALL, F.R.G.S., Vice-Chairman of the Council.

The SECRETARY read the notice convening the meeting.

Letters of apology for absence were read from a number of members of the Council and other members.

The Minutes of the last Annual Meeting were read and approved.

The SECRETARY then read the Report of the Council upon the work of the Society for the year 1900.

REPORT OF THE COUNCIL OF THE MANCHESTER GEOGRAPHICAL SOCIETY

FOR THE YEAR ENDING DECEMBER 31st, 1900.

The Council have to report that the year's work of the Society has been of great interest and value. The wide reach of enquiry has been shown by the number and variety of addresses delivered to the members during the year. The quality of the addresses may in some part be measured by the notes of them issued to the members in the Journal. The following are the titles of some of the addresses delivered :--

EUROPE.

Princess Road (Moss Side) Higher Grade School.

A Toy Railway at Worsley.

The Harz Mountains, with Brunswick and Hildesheim. Mr. E. W. Mellor, J.P., F.R.G.S.

Across the Lapland Alps. Mr. Ed. W. Cowan, C.E.

Iceland and the Icelanders. Mr. John R. Newby.

Reminiscences of Paris in 1889. Mr. John Snaddon.

The Higher Yorkshire Dales. Mr. J. J. Gleave.

Bradford : its Rise, History, and its Industries. The Delegate to B.A.A.

Paris Exhibition, Geography at. Professor Patrick Geddes.

Beach Formation in the Thirlmere Reservoir. Mr. R. D. Oldham,
Geological Survey, India.

The School of Geography at Oxford.

The Flora of the Carboniferous Rocks. Mr. W. W. Midgeley, F.R.Met.S.
Report of Delegate to British Association at Bradford.

Geography at Paris Exhibition. Professor Patrick Geddes.

ASIA.

The Roof of the World : Journeys in Central Asia. Capt. H. H. P. Deasy.
Remarks on the Crisis in China. (Thirty years in China.) Rev. Frederic Galpin.

150 *The Journal of the Manchester Geographical Society.*

Voyage to China and Japan. Mr. F. Hoyle, M.B. Ch. (Vic.).
Lady's Impressions of Hong Kong. Mrs. Unsworth.
The Geography of China. Mr. J. Howard Reed.
The History of and the Development and Changes in the Geography and
History of China. The Secretary.
The Personal Characteristics of the Chinese. Mr. R. W. Swallow, B.Sc.

AFRICA.

Journey through Somaliland and Southern Abyssinia, the Shangalla
Country, and Blue Nile. Dr. Reginald Kœttlitz.
Ancient Goldfields and Industrial Resources of Macombe's Country
(Zambesi). Dr. Carl Peters.
Description of the Ukamba Province, East Africa Protectorate. Mr.
John Ainsworth, C.B.
The Ascent of Mount Kenya (Kenia). Mr. H. J. Mackinder, F.R.G.S.
Journey in Search of Health to Teneriffe. Lieut.-Col. E. Rogers.
The Republics of South Africa. Mr. J. Howard Reed.

AMERICA.

A Thousand Miles up the Amazon. Dr. J. Jones, Leigh.

AUSTRALIA.

The Commonwealth of Australia. Mr. Wm. Harper.
The Snowy Ranges of Australia and the Meteorological Work of the
Colonies of Australia, &c. Mr. Clement Wragge, of Australia.

MISCELLANEOUS.

Dogs, origin, history, varieties, uses, and duty towards. The Secretary.
Cape Meteorological Report for 1898. Mr. C. M. Stewart, B.Sc.
Several short lectures to the Children at the Children's Party.
Reports, The Council, Victorians, and Examiner.
A Voyage Round the World. Mr. Percy H. Leigh.

In addition to these addresses a good many smaller papers and communications were read at the various meetings of the Society.

CORRESPONDENCE.

The Correspondence with Foreign Societies, members, and others, has been considerable in extent, and very varied in character.

PRESENTATIONS.

The Presentations to the Library of pictures and maps, of portraits of members, and to the Museum, have been of a varied and most interesting kind. The Society is greatly indebted to the departments of Government, to the Imperial Institute, to societies, and to private persons for the great additions to the Society's accumulations. From the

lists given in *Geography* the members may have some idea of the constantly increasing materials in the hands of the Society. Nothing less than personal examination can make clear the splendid collection of the Society.

CORRESPONDING SOCIETIES.

The Society has to thank the officials of many Corresponding Societies, who on the presentation of the official letter of the Society, have given generous and ungrudging direction and valuable suggestions and help to the members of the Society travelling abroad who have been the bearers of such letters. We are also indebted to the over 200 Corresponding Societies for the generous exchange of their journals with this Society.

DELEGATIONS.

A delegate was appointed to attend the British Association at Bradford. He has duly reported to the Society.

DELEGATIONS attended the following meetings in Paris :—

The Congress on Commercial Economics and Commercial Geography at Paris on Colonies.

The Congress on Sociality.

The Seventh Congress of Navigation.

The Reports of the above Congresses will come duly to hand and require careful study.

A delegation was appointed to attend the meeting of British Geographical Societies, convened by the Royal Geographical Society, and the report of those delegates has been given to the Council.

EDUCATION.

The disturbed condition of the Educational world has not permitted of much active work on the part of the Society, but the Special Committee is watching keenly the developments, with the view of seeing that Geography takes its rightful place in the Educational system of the country.

The work of the School of Geography at Oxford, of the Geographical teaching in connection with the Colleges of the Victoria University, of the Geographical Association, and the Commercial teaching of the Manchester scheme, have all received considerable attention by the Committee on Education.

THE "VICTORIANS."

Active Educational work has been done by the "Victorians," whose report is presented herewith by the Hon. Secretary, Mr. C. A. Clarke. They have covered a wide area in the course of the lecturing season, and have given great satisfaction to large audiences by the addresses they have delivered.

The Society is very glad to acknowledge its indebtedness to these gentlemen for their gratuitous and arduous labours in this direction.

The "Victorians" have also given very able assistance in other departments of the work of the Society.

"JOURNAL."

The Council is glad to be able to announce that it is expected this issue will, in the early part of next year, be brought up to date.

LIBRARY, MAP ROOM, AND MUSEUM.

The "Victorians" will shortly commence the preparation of a Catalogue of the Library and lists of the great collection of maps.

The Museum is progressing, and in a little while will be opened (being now in course of arrangement) for the use of the members.

COMMERCIAL INVESTIGATION.

Several members who are travelling abroad have intimated their intention to report to the Society on their return upon subjects interesting to the members.

In the course of next year we may hope to hear from them.

It would be of great value to the Society, if our funds would allow us, to send our own reporters to various fields for confidential investigation and report.

We hope we may be able to accomplish this useful work in the near future.

THE EXCURSIONS OF THE SOCIETY.

The Excursions of the Society at home and the help given to our members when travelling abroad afford the members great pleasure and information. The Excursions are not mere pleasure jaunts, but are meant to have a definite geographical value.

The Society may, indeed, be considered to be a much travelled body, and the taunt sometimes heard that our eyes are on every country but our own is not true so far as this Society is concerned.

Lancashire, Yorkshire, Cheshire, North Wales, Scotland, Ireland, Cornwall and the Scilly Isles, Devonshire, Kent, Suffolk, Norfolk, and Lincolnshire have been visited amongst other places in the British Isles, and reports of most of the journeys have been given to the Society, whilst reports of foreign travel have also been freely given by the members of this Society.

The excursions of this year were very interesting, and will be found reported in the Journal for this year.

The following is a list of Excursions and Visits, and others were made by smaller numbers of members.

The John Rylands' Library.

Princess Road Higher Grade School, Moss Side.

Worsley—The Toy Railway of Mr. Henry H. Leigh.

Altrincham—Dunham Park and Raynor Croft.

The Lancashire and Yorkshire Railway Locomotive Works at Horwich.

Marple, Marple Bridge and Finchwood.

The New Technical School, Sackville Street, Manchester.

Lytham—Conference of Affiliated Societies and Victorians.

Derby—The Royal Crown Works, Kedleston Park, Hall, and Church.

DEATHS.

The deaths of members this year have been very numerous, and as the process of supplying their places on the membership roll is slow, it makes the work of carrying on the operations of the Society somewhat trying and arduous. Amongst those members whose deaths we deplore may be particularly mentioned the following:—

Mr. W. S. Besant.

Mr. Alderman Isaac Bowes.

Mr. Thomas Dentith.

Mr. Councillor Joshua Hampson.

Mr. F. S. Johnson.

Mr. Max Robinow.

Rev. J. Macpherson.

FINANCE.

The Balance Sheet for the year, with the Hon. Auditor's Report, is appended to this Report, and the need for a large accession of new members is shown by the fact that the result of the year's work financially is to leave a small balance against the Society.

After reading the report, the SECRETARY remarked that there was a small deficit against the Society, and it was hoped that the amount would soon be wiped off as the results of efforts which were being taken with that object.

The SECRETARY then read (in the absence of the Honorary Secretary, Mr. C. A. Clarke) the report of the Victorians for the past season.

REPORT OF "VICTORIANS" 1900-1901.

The addresses given during the session just ended have been delivered in a large number of towns widely separated, but the majority within 100 miles of Manchester.

The number of Affiliated Societies is increased to 20. Each society is entitled to four lectures and this renders it now most difficult for the "Victorians" to lecture for any society except those affiliated with us, as preference must be given to them in their requests. The lectures given during the past session have been greatly appreciated by audiences whose average number have ranged from 70 to 700 persons. The "Victorians" are gratified at the response made to their appeal to members who are able to lecture, who have given them their assistance, and in some cases have joined the "Victorians." Further assistance is, however, still necessary, and again an appeal is made to the large body of members and they are again invited to co-operate in this work with us.

A new list of lectures is being prepared on subjects which are interesting and from which choice can be made by members for future sessions. In every case members are prepared to lecture.

The terms on which lectures are given are on the list of lectures.

The list of "Victorian" Lecturers, about 80, to be revised.

It is desirable that the attention of our readers and members be drawn to the very useful museum open for inspection in the rooms of the Manchester Geographical Society. Here are arranged samples of colonial and foreign products, and of minerals, &c. The Museum is of much commercial value. This department is highly appreciated by those members who have availed themselves of its usefulness.

The following are some of the lectures given by the "Victorians" from October, 1900, to March, 1901.

"VICTORIAN" LECTURES, 1900-1901.

OCTOBER.

8. Eagley. "British Columbia and Klondyke." The Secretary.
9. Farnworth. "China." Mr. J. Howard Reed.
11. Burnley. "Switzerland." Dr. Kelymack.
17. Walkden. "Western Highlands of Scotland." Mr. W. Harper.
24. Pendlebury. "Rocky Mountains." The Secretary.
24. Heaton Park. "Amazon." Dr. J. Jones.
31. Whaley Bridge. "Western Highlands of Scotland." Mr. W. Harper.
31. Winnington. "The Nile." The Secretary.

NOVEMBER.

7. Bolton. "China." Mr. J. Howard Reed.
7. Winnington. "China." Mr. R. W. Swallow, B.Sc.
12. Horwich. "The Land of the Rising Sun." Mr. J. Howard Reed.
12. Besses. "China." Mr. R. W. Swallow, B.Sc.
12. Farnworth. "The Western Highlands of Scotland." Mr. W. Harper.
17. Oldham. "A little known corner of Yorkshire." The Secretary.
21. Bolton. "British South Africa." The Secretary.
21. Patricroft. "China." Mr. R. W. Swallow, B.Sc.
26. Meltham. "Australia." Mr. Wm. Harper.
28. Walkden. "China." Mr. R. W. Swallow, B.Sc.

DECEMBER.

3. Golborne. "China." Mr. J. Howard Reed.
6. St. Mark's. "South Africa." Mr. J. Howard Reed.
8. Prestwich. "Burns." Mr. W. Harper.
9. Winnington. "Cape to Cairo." Mr. J. Howard Reed.
9. Whaley Bridge. "China." Mr. R. W. Swallow, B.Sc.
10. Nicholl's Hospital. "China." Mr. J. Howard Reed.
10. Horwich. "The Western Highlands of Scotland." Mr. W. Harper.
11. Hollinwood. "China." Mr. R. W. Swallow, B.Sc.
12. Winnington. "Ceylon." Mr. Wm. Harper.
14. Caledonian Society. "Great Lakes of Central Africa." Mr. J. Howard Reed.

17. Greenfield. "China." Mr. J. Howard Reed.
18. Tyldesley. "Cape to Cairo." Mr. J. Howard Reed.
18. Nelson. "China." Mr. R. W. Swallow, B.Sc.
28. Macclesfield. "China." Mr. J. Howard Reed.
- Croix. "Castile and Arragon." Mr. C. H. Bellamy, F.R.G.S.
- Lille. "The Rocky Mountains." Mr. C. H. Bellamy, F.R.G.S.

JANUARY.

9. Winnington. "Cape to Cairo." Mr. J. Howard Reed.
9. Whaley Bridge. "China." Mr. R. W. Swallow, B.Sc.
9. Milnrow. "South Africa." Mr. J. Howard Reed.
12. Urmston. "Canada." Mr. A. Y. Scholfield.
14. Farnworth. "Across Africa." The Secretary.
14. Horwich. "London to Australia." Mr. W. Harper.
14. Leigh. "Brazil." Mr. J. M. Boraston.
15. Nelson. "Boer Republics." Mr. J. Howard Reed.
17. Haslingden. "Japan." Mr. J. Howard Reed.
19. Oldham. "Dogs." The Secretary.
21. St. Stephen's. "Transvaal." Mr. J. Howard Reed.
22. Nelson. "Week in Poppyland." The Secretary.
22. Lille. "Castile and Arragon." Mr. C. H. Bellamy, F.R.G.S.
24. Nicholl's Hospital. "British Columbia and Yukon." The Secretary.
28. Meltham. "Lakes of Killarney." Mr. H. C. Martin.
- Ancoats. "Canada." Mr. A. Y. Scholfield.
28. Meltham. "Western Highlands of Scotland." Mr. Wm. Harper.
30. Openshaw. "Canada." Mr. A. Y. Scholfield.
30. Winnington. "Various Boer Republics of South Africa." Mr. J. Howard Reed.

FEBRUARY.

6. Walkden. "China." Mr. J. Howard Reed.
11. Horwich. "Switzerland." Mr. A. Y. Scholfield.
13. Swinton. "China." Mr. R. W. Swallow, B.Sc.
20. Winnington. "Dogs." The Secretary.
25. Farnworth. "British Columbia and the Yukon." The Secretary.

MARCH.

1. Urmston. "China." Mr. R. W. Swallow, B.Sc.
- Dore. "China." Mr. J. Howard Reed.
6. Monton. "China." Mr. J. Howard Reed.
9. Leyland. "Dogs." The Secretary.
21. Nicholl's Hospital. "British Columbia and Klondyke." The Secretary.

APRIL.

9. Nelson. "Australia." Mr. William Harper.
28. Walkden Parish Church. "Sir John Franklin." Mr. G. H. Warren.

The following is the revised list of lectures offered for next session :—

VICTORIAN LECTURES, for 1901-1902.

- | | |
|--|--|
| <p>ASTRONOMICAL AND PHYSICAL GEOGRAPHY.</p> <ol style="list-style-type: none"> 1 The Earth in Space 2 The Sun, Moon, and Eclipses 3 Natural Phenomena—Rainbow, Geysers, Volcanoes, &c. 4 Physical Geography 5 Water Action shaping the Earth 6 Heat and Compression in Mountain Raising 7 Landscape Making by Heat, Cold, and other Natural Agents 8 How Maps are Drawn <p>HISTORICAL GEOGRAPHY.</p> <ol style="list-style-type: none"> 9 Ancient Battlefields 10 The Battlefields of Europe 11 The Armies of the Empire—some incidents in History 12 Lives and Work of Great Missionaries <p>BRITISH GEOGRAPHY.</p> <ol style="list-style-type: none"> 13 A Little Known Corner of Yorkshire 14 Little England Beyond Wales 15 Sights and Scenes in North Wales 16 Plymouth and Dartmoor 17 Westward Ho! 18 A 300 Miles Tour in Devon 19 A Week in the Scilly Isles 20 A Holiday in the Channel Islands 21 Little Known Essex and Suffolk 22 The Western Highlands of Scotland 23 The "Scott" Country 24 The Land of Burns 25 Glasgow and the Exhibition 26 The Clyde and its Watering Places 27 The Lakes of Killarney 28 A Fortnight in Connemara 29 Sunny Side of Ireland 30 North and West of Ireland 31 Three Men in Ireland—From Larne to Donegal <p>THE GEOGRAPHY OF FRANCE.</p> <ol style="list-style-type: none"> 32 The Geography of France 33 The Loire <p>BELGIUM AND HOLLAND.</p> <ol style="list-style-type: none"> 34 A Fortnight in Belgium 35 Belgium—Historical, Topographical, Political, Arts and Letters 36 A Cruise in Dutch Waters <p>SWEDEN.</p> <ol style="list-style-type: none"> 37 Across Sweden by the Göta Canal <p>GERMANY.</p> <ol style="list-style-type: none"> 38 The Hartz Mountains <p>SWITZERLAND.</p> <ol style="list-style-type: none"> 39 Switzerland <p>ITALY.</p> <ol style="list-style-type: none"> 40 A Scamper round Italy 41 Unknown North Italy 42 Genoa and Columbus 43 Florence—Topography, History, Art 44 The Bay of Naples and Vesuvius | <p>SPAIN AND PORTUGAL.</p> <ol style="list-style-type: none"> 45 Gibraltar and Tangiers 46 Andalusia and the Alhambra 47 The Canary Islands and Madeira <p>ASIA.</p> <ol style="list-style-type: none"> 48 Palestine, Old and New 49 The Far East : or, Eastward Ho ! 50 A Peep at "The Land of the Rising Sun" 51 A Chat About China 52 Greater China 53 China—Geographical and Historical 54 China—The Yangtse Kiang 55 The Productions and Commerce of China 56 Ceylon, "The Pearl of the East" <p>INDIA.</p> <ol style="list-style-type: none"> 57 General History and Physical Geography 58 The North-Western and North-Eastern Frontiers <p>AFRICA.</p> <ol style="list-style-type: none"> 59 Egypt—The People, Manners, Customs, and Religion 60 " —The Nile and the Monuments 61 British South Africa 62 " East 63 " Central 64 " West 65 The Discovery and Exploration of the Congo 66 Across Africa with Stanley 67 The Commercial Products of Central Africa 68 The Great Lakes of Central Africa 69 Uganda 70 German East Africa—"Pangani to Nyasa" 71 The Zambesi and Nyasaland <p>AUSTRALASIA.</p> <ol style="list-style-type: none"> 72 From London to Australia via Suez Canal (the Royal route) 73 The Commonwealth of Australia 74 Australia—Discovery and Exploration. Development, Productions, and Present Condition 75 " Victoria and New South Wales 76 " Queensland and South Australia 77 " Western Australia 78 Tasmania 79 New Zealand—the Alps and Glaciers <p>AMERICA.</p> <ol style="list-style-type: none"> 80 The Dominion of Canada 81 The Eastern Provinces of Canada 82 The Great North-West 83 British Columbia and the Yukon 84 From Liverpool to Vancouver Island 85 Chicago in 1893 86 Cuba, "The Queen of the Antilles" <p>GENERAL.</p> <ol style="list-style-type: none"> 87 Arctic Exploration 88 Antarctic Exploration, Past and Prospective 89 The Mediterranean—Comparative Geography |
|--|--|

These Lectures can be illustrated with Lantern Slides if required. For some of the lectures on the Colonies small collections of natural products can be exhibited.

Members and Societies desiring to have lectures will oblige the Victorians if they will please make early application.

C. A. CLARKE,

Hon. Sec. "Victorians."

The reports of the Examiner of the Society (Mr. J. D. Wilde) and of the delegates to the various conferences were read.

The Balance-sheet and the Auditors' Report for 1900 were read.

REVENUE ACCOUNT.

JANUARY 1st TO DECEMBER 31st, 1900.

Dr.

Cr.

		£ s. d.				£ s. d.	
To Balance from last account.....		59	4	7	By Donations —		£ s. d.
					Mrs. A. Greg		5 0 0
					Mr. G. Thomas		1 1 0
					Mr. J. Wainwright, J.P.		1 0 0
					,, Balance carried forward		7 1 0
							52 3 7
							<u>£59 4 7</u>
		£ s. d.				£ s. d.	
To Expenses of Meetings.....		168	6	1	By Members' Subscriptions—		£ s. d.
" Journal, less Advertisements.....		160	1	11	Life		31 0 0
" Rent, Rates, Gas, Water, and Insurance		105	1	11	Ordinary		558 12 0
" Salaries		110	10	0	Associate.....		63 0 0
" Books, Maps, Binding, &c., Library		24	5	4	Societies		31 10 0
" Sundry Expenses, Stationery, Postages, Telegrams, Carriage, Wages, Coal, &c.		90	8	7			684 12 0
" Commission and Expenses, New Members, and Collection of Subscriptions		88	7	9	" Bank Interest		4 8 11
" Education Committee's Expenses.....		7	10	6	" Balance Deficit on Year carried forward		65 11 2
							<u>£754 12 1</u>

GENERAL BALANCE SHEET, DECEMBER 31st, 1900.

LIABILITIES.		ASSETS.	
	£ s. d.		£ s. d.
To Subscriptions paid in advance	32 0 6	By Subscriptions in Arrear	21 0 0
" Sundry Accounts outstanding	170 4 2	" Cash in hand—	
" New Building Fund	2 2 0	Bank.....	£59 4 11
		Secretary	6 7 0
			65 11 11
		" Balance from last Year, less	
		Donations	52 3 7
		" Deficit for Year 1900	65 11 2
			117 14 9
			£204 6 8

NOTE.—The Furniture, Fittings, Books, Maps, &c., in Library, Stock of *Journals*, and Lantern and Slides, are not taken into account as assets in the above statement. There are 57 Life Members, whose subscriptions have been taken as Revenue.

AUDITOR'S CERTIFICATE.

Audited and found correct,

May 4th, 1901.

(Signed) THEODORE GREGORY, F.C.A., Hon. Auditor.

NOTE TO BALANCE SHEET.

	£	s.	d.
The Accounts for 1899 left a balance against the Society of.....	59	4	7
Towards that deficit the following gifts were made :—	£	s.	d.
Mrs. Arthur Greg	5	0	0
Mr. G. Thomas	1	1	0
„ J. Wainwright, J.P.	1	0	0
		7	1 0
Leaving a debit balance of	52	3	7
The debit balance for 1900 is.....	65	11	2
To al.....	117	14	9

To liquidate that balance the following gifts have been made :—

Mr. S. H. Brooks, F.R.G.S., F.I.Inst.....	30	0	0
„ J. P. Thomasson	30	0	0
„ J. C. Blake, F.R.G.S.	10	10	0
„ Harry Nuttall, F.R.G.S.	10	0	0
„ S. Oppenheim, J.P.....	10	0	0
„ N. Kolp.....	10	0	0
„ G. I. Blake	5	5	0
„ Herbert Philips, J.P.	5	0	0
The Victorians	5	0	0
Mr. G. Thomas	2	2	0
„ H. Seigler.....	2	0	0
„ H. C. Pingstone ..	1	1	0
	£120	18	0

Leaving a credit balance to carry forward of	3	3	3
	£120	18	0

The CHAIRMAN moved the adoption of the reports and balance-sheet for last year, and in doing so said the work of the Society was steadily progressing. A large amount of the work that was done was not seen by the public. Additions were being constantly made to the library in the shape of books and maps, and the collection, which had been carefully arranged, was of great interest to all the commercial men in this district. It was therefore to their interest to join the Society. The valuable work which the Victorians were doing in the interests of education was not sufficiently known. Visiting various parts of Lancashire and places outside the county the members of that section gave valuable addresses in a variety of geographical subjects, all of which were amply illustrated by lantern pictures. The men were engaged in their own business affairs during the day, and voluntarily gave up their evenings to this important public work. The Chairman added that many of the members were of opinion that the study of geography which the Society carried on in connection with commerce was of the utmost importance to Manchester and district.

Mr. J. H. LEWIS seconded the motion, which was carried.

A very hearty vote of thanks to the Council, Officers, and Auditors was proposed, seconded, and carried.

The CHAIRMAN moved the election of the Council for the next year and that of the various Committees of the Council.

THE
COUNCIL AND OFFICERS
OF THE
MANCHESTER GEOGRAPHICAL SOCIETY
FOR 1900.

President.

His Royal Highness the DUKE OF CORNWALL AND YORK, K.G.

Vice-Presidents.

His Eminence CARDINAL VAUGHAN.
His Grace the DUKE OF DEVONSHIRE, K.G.
The Right Hon. the EARL OF DERBY, K.G.
The Right Hon. EARL EGERTON OF TATTON.
The Right Rev. the LORD BISHOP OF MANCHESTER.
The Right Hon. the LORD MAYOR OF MANCHESTER.
His Worship the MAYOR OF ACCRINGTON.
His Worship the MAYOR OF OLDHAM.
His Worship the MAYOR OF SALFORD.
The PRINCIPAL OF OWENS COLLEGE.
The Right Rev. MONSIGNOR GADD, V.G.
The Right Hon. A. J. BALFOUR, M.P.
Sir W. H. HOULDSWORTH, Bart., M.P.
Sir HUMPHREY F. DE TRAFFORD, Bart.
Sir FRANK FORBES ADAM, C.I.E.
Alderman Sir BOSMIN T. LEECH, J.P.
Alderman Sir JOSEPH LEIGH, J.P.
Mr. FREDERIC BURTON.
The Very Rev. L. C. CASARELLI, M.A., Ph.D.

Mr. F. CAWLEY, M.P.
Professor W. BOYD DAWKINS, M.A., F.R.S.
Professor T. H. CORE, M.A.
Mr. E. F. G. HATCH, M.P.
Mr. W. H. HOLLAND, M.P.
Mr. HENRY LEE, J.P.
Mr. WILLIAM MATHER, M.P.
Mr. HARRY NUTTALL, *Vice Chairman of the Council.*
Mr. SAMUEL OGDEN, J.P.
Mr. HERBERT PHILIPS, J.P.
Mr. F. PLATT-HIGGINS, M.P.
Mr. FRITZ REISS.
Mr. C. E. SCHWANN, M.P.
Mr. C. P. SCOTT, M.P.
Mr. H. SOWLER.
Rev. S. A. STEINTHAL, F.R.G.S., F.I.Inst.
Chairman of the Council.
Mr. T. R. WILKINSON.
Mr. F. ZIMMERN.

Trustees.

Mr. Councillor S. H. BROOKS, F.I.Inst. Mr. SIDNEY L. KEYMER, F.R.G.S.
Mr. E. W. MELLOR, J.P., F.R.G.S., F.I.Inst.

Honorary Treasurer.

Mr. S. OPPENHEIM, J.P., Vice-Consul for Austria-Hungary.

Mr. J. E. BALMER, F.R.G.S.
Mr. J. C. BLAKE, F.R.G.S., F.I.Inst.
Mr. G. T. BOWES.
Mr. J. C. CHORLTON.
Mr. C. COLLMANN.
Consul for the German Empire.
Mr. H. T. CROOK, C.E.
Mr. E. W. GREG, F.R.G.S.
Mr. Councillor T. HASSALL.
Mr. J. E. KING, M.A., High Master, Manchester Grammar School.

Mr. N. KOLB.
Lady LEECH.
Mr. D. A. LITTLE.
Mr. T. C. MIDDLETON, J.P.
Mr. R. C. PHILLIPS.
Mrs. PICKERING.
Mr. W. J. SINCLAIR, M.D., J.P.
Mr. GEO. THOMAS.
Mr. J. THOMPSON.
Mr. H. WOOLLEY, F.R.G.S.
Mr. JOHN R. NEWBY.

Honorary Secretaries.

Mr. F. ZIMMERN. Mr. J. D. WILDE, M.A.
Mr. J. HOWARD REED.

Honorary Auditor.

Mr. THEODORE GREGORY, F.C.A.

Honorary Secretary Victrolarians.

Mr. C. A. CLARKE.

Secretary and Editor.

ELI SOWERBETTS, F.R.G.S., F.I.Inst., 16, St. Mary's Parsonage, Manchester.

Honorary Local Secretaries.

South Manchester and Moss Side, Mr. J. HOWARD REED.	Leigh, Tyldesley, &c. Mr. J. WARD.
Oldham, Mr. F. RIGG.	Urmston and Flixton, Miss A. E. LAW.
Lytham, Mr. J. T. LIGHTWOOD.	Leeds, Mrs. JESSIE E. SHRIEVE.
Stockport, Mr. T. H. RATHEONE.	Blackpool and Neighbourhood, Mr. J. RIGBY.
	Ashton and Stalybridge, Mr. C. T. I. GARNER.

A hearty vote of thanks to the Chairman for his services in presiding, and for the valuable services he had given to the Society, was passed unanimously.

The CHAIRMAN responded.

ANNUAL DINNER.

The annual dinner of the society was held at the Albion Hotel, Piccadilly, on Tuesday, May 7th, at 7 p.m. The room was beautifully decorated, and the presence of a number of old soldiers who had shared with Sir J. Willcocks in his campaigns was interesting. Mr. Harry Nuttall, F.R.G.S., Vice-Chairman of the Council, presided. Mr. S. H. Brooks, F.R.G.S., F.L.Inst., one of the Trustees of the society, Mr. Fritz Zimmern, Hon. Secretary, and Mr. J. Howard Reed, Hon. Secretary, occupied the vice-chairs. Messrs. H. H. Smith-Carrington, Alderman Frankenburg, E. W. Greg, F.R.G.S., George C. Haworth, J.P., D. A. Little, T. C. Middleton, J.P., S. Oppenheim, J.P., C. H. Scott, J.P., E. Steinthal, and Harry Sowler were also present. During the evening a raised model map of India, which had been specially made for the occasion by Mr. J. D. Wilde, Hon. Sec. and a Victorian member of the society, was exhibited, in addition to two fine maps of Africa. Another interesting feature of the proceedings was the election of Sir James Willcocks as a member of the society, on the nomination (at his own request) of the Chairman. A programme of music was performed by the Northern Military String Band, Mr. A. Gray conducting. Before proceeding to the hotel, Sir James visited various public buildings in the city, including the Cathedral, Chetham Hospital, the Royal Exchange, and the Town Hall.

After dinner, on the removal of the cloth, the CHAIRMAN gave the following toasts, which were loyally responded to:—His Gracious Majesty King Edward VII.; Her Gracious Majesty the Queen; His Royal Highness the Duke of Cornwall and York, K.G., the President of the Society; Her Royal Highness the Duchess of Cornwall and York, and the rest of the Royal Family. In proposing these toasts, the Chairman referred to the voyage of their Royal Highnesses the Duke and Duchess, and expressed a hope that it might be happy and successful.

The CHAIRMAN, in submitting the toast of the evening, alluded to the services given to the Empire by Sir James Willcocks in Afghanistan, the Soudan, Burmah, Manipur, the West and East of India, and Ashanti. Last year there was much anxiety as to the fate of Kumasi, but this gallant soldier had fixed a day upon which the siege was to be raised, and, in spite of the difficulties of the country and climate, he redeemed his promise. The Manchester Geographical Society honoured Sir James Willcocks, not only because of his arduous services, but also because he was a great traveller.

Sir JAMES WILLCOCKS, in responding, remarked that he had for twenty-three years had the honour of serving the late Queen and the present King, and, so far as the army was concerned, he would sooner be the poorest soldier than the richest man in England. Referring to West Africa, he said that there was there a vast British territory. The forces he commanded were not only used for punitive measures and fighting, but for the development of a trade which, he believed, would be of great benefit to Manchester and other centres of industry in this country. More was done by a portion of the army he commanded to bring rest and peace to the inhabitants of the territory mentioned than

people here imagined. When he first went to West Africa, the maps which were furnished to him and his brother officers gave absolutely no information whatever; but during the last three years, since Mr. Chamberlain had sent out various forces, they had been able to greatly add to the knowledge of the country. There was now in course of preparation a map of the Niger territory, which would explain the whole of the Niger from its source to the borders of the British possessions. Other maps of different parts of West Africa were also being prepared, and the geographical knowledge which had been gained during the last eighteen months would be greatly appreciated by all who took any interest in geography. Railways were being rapidly made, and the country consequently opened up. With regard to Ashanti, there were no end of goldfields apparently in the market, though the only one he knew about was one at Obuassi. He was astonished during his travels in West Africa to find so many great cities, and in one city he remembered, containing 350,000 inhabitants, there were displayed from one end to the other of it nothing but Manchester goods. Sir James concluded his remarks by paying a high tribute to the black soldiers who marched with him to Kumasi.

Mr. DAVID HENRIQUES proposed the Manchester Geographical Society and Affiliated Societies. He said that the society was in need of a lecture hall and a new library; in fact, it wanted a house worthy of the good work it accomplished. He hoped members would bring the objects of the society before their friends, so that a membership of 2,000 persons could be obtained. He understood that with such a membership the society would be placed in a sound financial position.

Mr. J. E. BALMER supported the toast, which was responded to by Mr. F. ZIMMERN, and also by

Mr. J. HOWARD REED, who complained that some members of the society were not in the habit of keeping themselves well posted in regard to its work. Moreover, the lectures were not so well attended as they might be. If the society had done nothing else than address its members upon the people and nature of various countries, and reproduce the information, articles, and reports in geography, it had done a work worthy of the attention and commendation of the citizens of Manchester. He hoped the society would attain the object of a membership of 2,000 persons. This would put them in such a position that suitable premises could be had, and also a proper staff employed, so that the society would not have to be dependent upon the enthusiasm and devotion of one man. He did not know what would have become of the society if it had not been for the arduous labours of the secretary, Mr. Sowerbutts.

Mr. SOWERBUTTS also addressed the gathering, and earnestly appealed to members to take a keener interest in the society and seek to extend its usefulness. Within forty miles of Manchester there were over seven millions of people, and it was only just and right that these people, who were so much dependent on our trade with the colonies and foreign countries, should be taught something about those places across the sea.

The toast of the Trade and Commerce of Manchester and Salford was proposed by Mr. John SNADDON, and was responded to by Mr. E. W. GREG and Mr. HARRY SOWLER.

Mr. H. SEIGLER proposed the health of the Chairman, and the toast was supported by Mr. S. H. BROOKS and Mr. J. C. BLAKE.

The CHAIRMAN responded.

Sir James returned to London by the midnight train.

The following is the *Daily Dispatch* account of the proceedings at the Dinner:—

THE HERO OF KUMASI, SIR J. WILLCOCKS, IN MANCHESTER.

THE COMMERCIAL DEVELOPMENT OF WEST AFRICA.

Sir James Willcocks, K.C.M.G., D.S.O., whose name is well known as the commander of the British troops which relieved Kumasi, yesterday visited Manchester. The gallant colonel arrived in the city in the afternoon, and, after a short rest, paid a visit to the Royal Exchange, the Town Hall, the Cathedral, and Chetham Library. In the evening he was present, as the guest of the evening, at a dinner of the Manchester Geographical Society, and at midnight he left for London.

GEOGRAPHICAL SOCIETY'S DINNER.

The dinner of the Geographical Society took place in the Albion Hotel, and was attended by a large number of members and friends. Mr. Harry Nuttall presided, and among those present were Messrs. H. H. Smith-Carington, S. H. Brooks, C. H. Scott, Dr. Sinclair, Alderman Frankenburg, E. W. Greg, H. Sowler, S. Oppenheim, H. Steinthal, G. C. Haworth, Howard Reed, F. Zimmern, Eli Sowerbutts, and others.

Letters of apology for absence were read from the Duke of Devonshire, Lord Derby, Mr. A. J. Balfour, M.P., the Lord Mayor of Manchester, Sir Humphrey de Trafford, Sir Joseph Leigh, Mr. William Mather, M.P., Mr. J. G. Groves, M.P., Sir William Bailey, Principal Hopkinson, and others.

Sir James Willcocks did a pretty act of military courtesy on arriving at the hotel. Drawn up in the lobby were several commissioners, whose medals showed that they had taken a prominent part in the battles of their country. The colonel, a smart, soldierly-looking officer, whose youthful appearance impressed the majority of the guests, spoke to the veterans in a manner which delighted the old fellows. Later in the evening he filled their cup of enjoyment to overflowing by signing his name in several menu cards, and presenting one to each of the old soldiers, accompanied by a little present.

After the usual loyal and patriotic toasts, the chairman proposed the toast of the guest of the evening, whose work in various parts of the world was well known to all present. "This travelled soldier," as he called him, had fought for his country in far-off parts—first in West India, then in East India, later in the Soudan, and in later years they found him in Nigeria organising the army there. Then they found their gallant guest at Ashanti, his work culminating in the splendid expedition which led to the relief of Kumasi. They had watched with great anxiety the fate of Kumasi when it hung in the balance, but they all knew how Sir James Willcocks had pledged himself that the place would be relieved by a certain date, and, in spite of great difficulties of climate and other matters, they knew in what a noble manner Sir James had redeemed that promise.

SIR JAMES WILLCOCKS' SPEECH.

Sir James Willcocks, who was greeted with enthusiasm on rising to respond to the toast of his health, said that for twenty-three years he had had the great honour of serving their late Queen and now the King. "So far as the army is concerned," he said, with a sincere ring in the boast, which elicited the applause of his hearers, "I would sooner be the poorest soldier than the richest man in England."

The honour they were doing him he appreciated not only for himself, but for the brave non-commissioned officers and native soldiers whom he had had the honour to command. He had not intended to speak of India, but with the magnificent model before him he could not resist the temptation to make a few remarks upon the work he had done in India. He had served in every part of India. Turning to a map of West Africa, he pointed out that one little bit of red colour, representing British territory, appeared very small, but it would take seven months to traverse on the march.

Although he was a soldier, he felt bound to say that for great commercial cities like Manchester there were great possibilities in Western Africa. Mr. Chamberlain was making a great big empire, and he could assure them that the army he commanded had done more to develop the trade of the country than people in this country imagined.

A SLAVE TRADE INCIDENT.

When he first went to Nigeria, the French flag was really flying over it. He was a soldier, and it was not his business to talk politics—but the French had to move out of it—(applause)—and the British flag was now flying over that territory. This led Sir James Willcocks to relate a slave trade story. When he was in that district a slave caravan was passing. The slaves, noticing the Union Jack floating, at once ran up to it and claimed protection, crying in their own language, "Where that flag is we know there is no slavery. (Applause.) We have come to seek protection; will you give it to us?"

"Needless to say," added Sir James modestly, "I kicked out the fellows who had charge of the slaves."

When he went out to the district first the maps gave them absolutely no information whatever, but during the last three years Mr. Chamberlain had sent out officers in every direction, and they had been able to greatly add to the geographical knowledge of West Africa, and they had now in preparation a map of the Niger territory. Railway development was also proceeding apace. The railway in Ashanti he had not had the pleasure to travel by. There were dozens of goldfields apparently on the market, of which he did not know much about, the only one he knew anything about being that at Obuassi.

After paying a handsome tribute to the black troops who supported him on his march to Kumasi—quoting Mr. Kipling, he said that "though their colour might be black, they were white, pure white inside"—he thanked the members of the Society for the hearty welcome they had given him.

During the evening it was intimated that Sir James Willcocks had consented to become a member of the Society.

A special programme of music was gone through by the Northern Military String Band, under the conductorship of Mr. A. Gray.

THE JOURNAL
OF THE
MANCHESTER GEOGRAPHICAL SOCIETY,

SOME NOTES ON THE BALTIC AND ARCTIC VOYAGES
OF THE S.S. "ERMACK" IN 1899.

BY MR. ARTHUR GULSTON.

[Addressed to the Society, in the Coal Exchange, Market Place, on Tuesday
October 8th, 1901, at 7-30 p.m.]



Yours truly
Arthur Gulston

IN bringing before you some of the interesting circumstances of the voyages of the icebreaker "Ermack" in the Baltic and Arctic Seas during 1899, it is as well to know that icebreakers were in existence as far back as the year 1870, the first icebreaker being a converted tug at Cronstadt, but only in the last decade have they reached large dimensions: such as the
VOL. XVII.—Nos. 7-9—JULY TO SEPT., 1901.

railway ferry icebreaking steamers on the Great Lakes of America, and at the Straits of Mackinaw; some built on the Tyne, one of them for Helsingfors in Finland, another for Odessa, and icebreakers at Reval, Riga, Copenhagen, Hamburg, and Vladivostock, and railway ferry icebreaking steamers, and for Saratoff for carrying the trains of the Siberian Railroad across Lake Baikal—a distance of 52 miles, where the ice varies from two to three feet in thickness, and being fresh-water ice it is of a very tough and hard nature.

The step from these vessels to the “*Ermack*” is a big one. She is the outcome of the fertile brain of Admiral Makaroff, of the Imperial Russian Navy; he has advocated for some years that one or more large icebreakers be built to keep the ports of Cronstadt and St. Petersburg open all the winter, as practically up to the advent of the “*Ermack*” these ports were closed by ice for about five months in each year, with the consequent loss to commerce, and the locking-up of the Naval Arsenals of Cronstadt and St. Petersburg, and the placing of the Baltic Fleet in winter quarters. Such a stupendous undertaking naturally caused much discussion and opposition amongst those interested and excitement amongst the inhabitants of Cronstadt, which, being an island, would be cut off from the mainland by the canal cut by the “*Ermack*,” the traffic across the ice to Cronstadt from the mainland being exceptionally heavy. It was also well known that the ice packs in the Gulf of Finland in some winters were of very large dimensions, and much difficulty was expected in breaking them down, the opponents of the scheme hoping that no icebreaker could possibly crush through them, and as no certain data had up to the arrival of the “*Ermack*” been obtained of the Baltic ice, some little anxiety was felt by those on board as to the results.

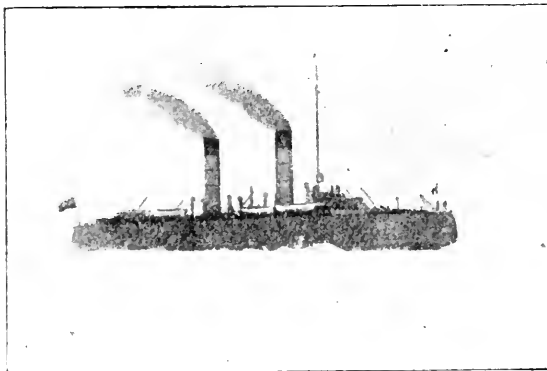
Amongst other means in the earlier stages that Admiral Makaroff adopted to bring his views before his countrymen was the reading of a paper before the Geographical Society of Russia in St. Petersburg on the subject of large icebreakers. His Majesty, the Czar, saw a report of this lecture in one of the papers, and spoke to his Minister of Finance, Mr. de Witte, on the subject, telling him to investigate the matter and report to him. The upshot was that a Commission was formed for the building of the vessel, and tenders were obtained, with the result that the contract was placed and the vessel built (as you know) on the Tyne.

The “*Ermack*” is a vessel 335ft. in length, 71ft. beam, and about 8,000 tons displacement, with her coals and stores on board. She was propelled by four sets of triple expansion engines of 2,500 I.H.P. each, and has six very large double-ended boilers of 160lbs. pressure for generating steam. One of the engines was situated in the bow of the vessel, but is now

removed to give a better form for ice crushing at the fore end, as although the bow engine was useful in Baltic ice, or one year old ice, the conditions of the large and harder ice of the Polar Regions required a more powerful form of wedge shape at the bow. The "Ermack" is capable at half power of putting 1,300 tons of weight on the ice to crush it down—this at her ordinary icebreaking draught of 22ft. to 23ft. The other three engines are placed near the stern of the ship. It is, of course, absolutely necessary that the moving portions of the machinery, the shafts and propellers, should be made enormously strong to withstand the heavy shocks and blows met with in negotiating the ice, and so far the machinery and propellers have withstood the tremendous trials to which they have been subjected. The boilers are clothed all over, and special means are adopted to prevent cold air entering the boiler rooms and causing sudden contractions on any portions of the boilers. The ship is built of steel having a complete double-skin fore and aft, so that should the outer shell be pierced by the ice, the ship would float on her inner skin, and as there are a very large number of compartments the amount of water let in would be reduced to a minimum, and by this form of construction great strength is given to the vessel to resist the shocks when icebreaking. The bow is enormously strong, and for a considerable distance the frames are only 12in. apart, the ice belt in the shell plating is 1½in. thick, and the connection of the plating to the stempiece is of the strongest description. The ice belt at the bow portion of the vessel extends to the keel, and at the sides of the ship is 27ft. deep. The angle of the bow is 70 degrees, the sides are 20 degrees, and the whole ship is built and shaped to withstand ice pressure, whether lateral or vertical, as this is the most awkward phenomena to be met with in the Polar ice.

There are large and ample means for heating the vessel by steam, also the circulating water, and for keeping the sea inlets clear of ice. The circulating water can also be discharged at the bow or stern to wet and melt the snow, so as to prevent it sticking to the ship and producing great friction. Pumping arrangements were also put in of very large capacity for "heeling" the ship, and for "tipping" her fore and aft, and *vice versa*, to clear and move her when fast in the ice, and salvage arrangements are fitted to pump out large quantities of water, or to save another ship in distress. The accommodation is very luxurious when compared with other vessels that have hitherto been to the Polar Regions. The ventilation is of the most scientific description, and it was found to act admirably in the cold weather. So marvellously is the vessel constructed that she is practically ice proof and nearly unsinkable, qualities that give her a vast superiority over any vessel which has hitherto navigated in the Polar Ocean.

The vessel left the Tyne on her maiden voyage for Cronstadt early in March, 1899, under the command of Captain Vassilieff, Admiral Makaroff also being on board. On the Sunday week after sailing the ice blink was seen just before dark came on, and at nine at night the first drift ice was met off the western end of the harbour of Reval. As a heavy gale was blowing it was thought more prudent to wait until the morning before entering the ice, and it was during this wait that we saw an enormous meteor fall in Finland, about 40 miles from us, making night as brilliant as day; portions of this meteor were shown in the Paris Exhibition of 1900. I would here explain that out in the Gulf of Finland the small drift ice is first met; this gradually grows to a paste which in calm weather soon solidifies into floes, which get larger until the solid ice is met, and in this the packs of ice are found. Early on Monday the ship was again steered for the ice, entering the drift about 4-30 a.m.,



THE VESSEL IN FIELD ICE.

which we continued to pass through until 7-30 a.m., when the field ice began to be met, and shortly afterwards the ship was ploughing her way steadily through the solid ice. The packs of ice from here to above the Island of Sescar were very thick and heavy, with only little water showing in places, and as much snow had fallen, we had some trouble in getting along, the newly-fallen snow being a great hindrance, but when clear of packs of ice the ship travelled at a great speed. That night we proceeded until after ten o'clock, the ice being illuminated by the electric projector, and the sight from the bridge of this illumination was wonderfully fine as the vessel passed through the ice, a dense fog finally bringing us to a standstill. At times the ship would get into a water-lane, and the effect of the ice at the edges of the canal is most interesting. The sea ice in the Baltic is a bright emerald green, and the lines of cleavage

of the ice are well seen in the lanes. Of course, the vessel would gain great speed in these canals, and the smashing of the ice at the end would be grand, the vessel driving large masses of ice apart as she tore through them.

The next morning an early start at 4 a.m. was made, and this day was characterised by the large number of packs we had to pass through: at places the whole face of the ice was a series of packs. The water at this portion of the Gulf of Finland is at the time of the forming of the ice continually on the move, so that as the ice forms it is broken adrift by currents, winds, and the sea, and re-forms in packs mainly in line across the Gulf, and therefore, across the line of the ship's course, packing in places to 20ft. and 30ft. in thickness, the packs being above the line of the field from 4ft. to 7ft.

On the rocks and islands in the Gulf of Finland the ice forms to an enormous thickness; on some of the islands where the lighthouses are situated large walls have been built to prevent the ice by pressure from overflowing the islands and destroying the dwelling-homes and lighthouses. On this day the ship came amongst the fishermen who live on the ice during the early months of the year; this population numbers from 1,000 to 1,200 persons. They have wooden huts to live in, holding from 10 to 20 persons each, and are packed in them at night like "sardines in a box." The roads on the ice through the snow are staked with bushes to guide them during fog and snow storms. The fishermen collect the fish from the fishing holes in small hand sledges, which in turn are brought together in large pony sledges, and taken to "St. Petersburg" for sale. Often we had to stop to allow a train of sledges to pass, and considerable care is required in navigating the vessel at night not to strike one of the huts, or the small bush shelters (behind which the hardy little ponies stand with nothing over them in this dreadful climate). These fishermen for the most part are agricultural labourers, who have nothing to do during the winter, and comparatively few of them follow a seafaring life.

The noise occasioned at the bow of the steamer when ice-breaking is in progress is considerable, but such is use that after the first day it was scarcely noticeable, and the vibration set up in the structure of the bow is very small indeed.

As the ship proceeded up the Gulf the ice gradually changed to fresh-water ice of a bluish tinge, very hard, which broke with a sharp report. The packs were left behind and the whole surface became smooth. Through this ice the ship passed quickly, and great was the pleasure of all on board when the spires and chimneys of Cronstadt were in view, lit up in the setting sun of as brilliant a day as can be imagined, snow glasses for the eyes being necessary from the early morning, owing to the brilliancy of the sun. That night the ship stopped a few

miles from "Tolboukin" lighthouse, and about ten p.m. the pilot arrived, having come in his sledge from the Pilot Station, the first pilot to assist a ship under such strange conditions.

The entrance of the ship into Cronstadt was the occasion of great excitement, especially as up to the time of her arrival in sight of the port it was firmly predicted that the feat was an impossibility. The weather was brilliantly fine, and as we approached the harbour many sledges came to meet us, and a large multitude of people, also a company of a regiment on "Ski," making a most picturesque sight. Some hundred men or more who were at work blasting rocks were drawn up in line, and cheered lustily as the ship passed them. The ship in the ice below Cronstadt could easily break her way through at eight knots an hour, the field ice being from 18in. to 24in. thick, with 6in. of snow upon it. The entrance into the harbour was deftly managed, and the ship berthed amongst a large crowd of persons

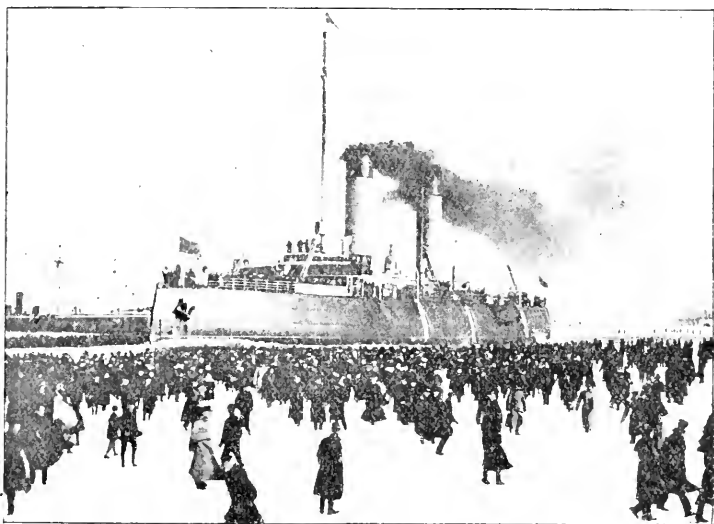


FIELD ICE IN THE GULF OF FINLAND.

on the ice without the assistance of even a rope, and Cronstadt with its navies was an open port for the first time in its history.

Three days after the arrival of the "Ernack" at Cronstadt, she was ordered to Reval to save steamers that were in danger of being crushed by the ice, and to open up the harbour. The return (as far as Hogland) was accomplished down the canal that we had broken on the upward voyage, the ship going easily through this at half speed. After passing Hogland, we were very much delayed by fog and snow. The navigation of the Gulf of Finland is difficult at all times, but when covered with ice and fog, navigation in such dangerous waters is indeed troublesome, as you can well understand taking soundings is only done under very great difficulty. Reval Bay was reached the next afternoon; there we found that an enormous ice pack

had been formed across the entrance to the bay, 15 miles from the town of Reval. The pack had formed during a N.W. gale that had blown the drift ice from the Baltic into the bay, packing it $3\frac{1}{2}$ miles across, about one-third of a mile wide, and from 20ft. to 25ft. thick, completely closing the harbour. The top of this ice was very rough and difficult to get across. On arriving near this pack we found that the field ice had eased, leaving a water lane some 500ft. wide, and through this, at about 3 p.m., we steamed at full speed, striking the ice on the other side, at fourteen knots an hour. Close to the place where we entered a steamer (the s.s. "Fairhead") was fast: the concussion of the "Ermack" with the ice liberated the vessel, which came astern into the water lane, and then followed us up the canal which



ERMACK ENTERING THE MOLE AT CRONSTADT.

we were making. By five p.m. we were through the large pack, which took some fourteen charges to accomplish, the newly-fallen snow being a great obstruction. We immediately liberated the Reval icebreaker and another steamer that had been fast ten days, and then proceeded down our own canal to liberate three steamers belonging to the Copenhagen Steamship Company, that were in great danger near rocks below "Sourop" lighthouse—one of them without a propeller, a second with only one blade left, and the third (which had come to their assistance) fast close astern of the others. The cutting-out of these vessels was a grand sight, as the "Ermack" had to break three large semi-circles out of the ice from the water lane before she could

get sufficiently close enough to them to crack the ice up to their hulls; great care had to be exercised that we did not squeeze them and crush in their sides. This operation was carried out after dark under the electric light, all the vessels having ample means of lighting on board, and was indeed a splendid spectacle. The next morning we liberated three more vessels, and then proceeded to take them all up to Reval, breaking a channel as we went. The entrance to the Reval harbour was made the occasion of great rejoicing by the town, and large numbers of people in sledges and on foot came to meet the fleet, making a most exciting scene as we came "tearing" through the crowd at full speed. As there were many steamers in the harbour and others expected, it is easy to understand how the opening of the port by the "Ermack" was the cause of much pleasure to its inhabitants.



UNDERSHOD ICE 56 INCHES THICK WITH 6 INCHES OF SNOW ON IT.

We left Reval early on the Saturday morning before Easter Day to search for two steamers that were fast in the ice out in the entrance to the Gulf of Finland, and reported to be in danger. We steamed across through the ice to about twelve miles off the port of Hango in Finland, where the icebreaker "Sampo" came to meet us, and she gave us the approximate position of the lost steamers. As this was nine p.m. we steamed through the ice by the aid of the electric projector until it was judged that the distance was run; during the night it came on to blow a heavy gale, with snow falling. At daybreak on Easter Sunday we saw a steamer (which we liberated), but found she had only been fast two days. We then steamed westward, and at last sighted one of the lost steamers. With some careful handling we broke the ice round about her, and steamed off again with this boat following. In half an hour we found the

other steamer and liberated her. By this time the gale was blowing strongly, and the ice in this part of the Gulf broke up immediately after the second boat was liberated, and but for the timely arrival of the "Ermack" these boats and every soul would have been lost, as the break up of the ice would have crushed in their sides. They had been sixteen days fast, and the chart of their drift is very interesting. The crews in both boats were on the verge of starvation.

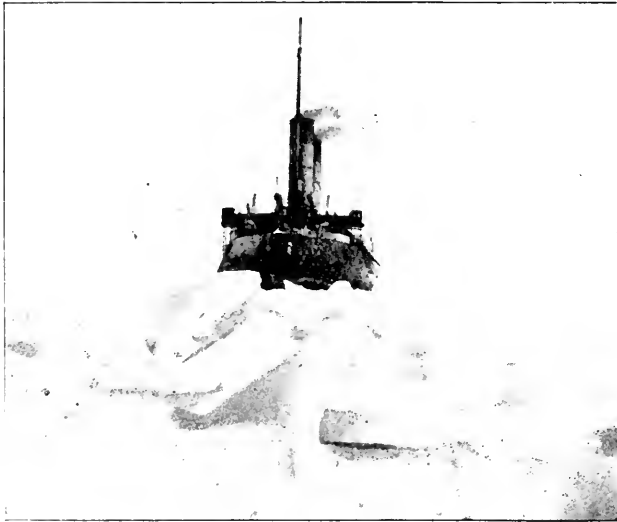
The "Ermack" shortly afterwards returned to Cronstadt and proceeded to St. Petersburg. During the limited time she was on the station that spring, the "Ermack" was instrumental in saving eighty-two vessels that were fast in the ice.

A Swedish steamer, the "Frigge," was sunk. She was one of a fleet of eight steamers following the "Ermack" to Cronstadt, and had a full cargo of herrings in barrels. She sheered heavily in the "Ermack's" canal owing to her having too much way on, and holed herself badly; she at once signalled her dilemma and the "Ermack" returned and took off the crew.

ARCTIC EXPEDITION.

We now pass on to the Arctic Expedition, the object of which was to test the capabilities of large icebreakers amongst the Polar ice. The "Ermack" left the Tyne on the 23rd of July, 1899, and proceeded to Advent Bay in Ice-fiord Spitzbergen, there to meet our tender (the s.s. "Virgo"), an ice-breaking steamer of small dimensions. She was loaded with coals and other spare things likely to be required. The "Ermack" was fully provisioned for twelve months in case of becoming fastened in the Arctic ice and being unable to get free until the following summer of 1900. There were altogether 125 souls on board, the larger portion belonging to the engine-room staff. Amongst others were the scientific staff, consisting of hydrologist, meteorologist, astronomer, and artist. The duties of deep sea sounding were undertaken by the chief officer, and dredging at great depths was superintended by Admiral Makaroff and the head doctor. On the voyage out and home to Advent Bay a complete set of stations were taken, position, depth, materials of the bottom of the ocean, the currents and the temperatures of the water, and other matters, all being most carefully recorded, the taking of the temperatures of the ocean at varying depths down to 1,600 fathoms being a most interesting study. The stops for each station occupied over two hours. All these objects going forward together gave us much to do. On arriving at Advent Bay we found not only our tender, but also the small tourist steamer "Lofoten" from Tromsø; a

large steam yacht, the "Erl King," and two small Norwegian sealers, making quite a fleet in this far-away corner of the earth. We left Advent Bay on Saturday, August 5th, and on Sunday we encountered the first polar drift ice at 7-20 a.m., and shortly afterwards we bade adieu to our tender. We were then well amongst the ice and the fight commenced in real earnest, collisions with enormous masses occurring continually. Where possible the ship was steered so as to push the larger floes aside, but as they became thicker and older as we proceeded north, it was soon a question of icebreaking and charging all the time.



ERMACK CHARGING THE PACK.

In speaking of charging it must be understood that the vessel when stopped by ice retires a hundred yards or more, and gets up speed to strike the strong spot and continues to do so until the obstruction is broken down. The "Ermack" is also designed for charging astern when it is desirable. Of course, when an opening in the ice could be seen, we steered for that place. The reflection of the water is seen in the sky in the Polar Regions at a considerable distance, and by this means the vessel can be steered to these places. In some of the water lanes it is curious to note how the ice had separated in a vertical cleavage, leaving walls of solid ice on each side of the canal from 12ft. to 20ft. thick; one can see the packed ice below the waterline for a considerable distance. In these translucent waters, on a clear day, the eyesight reaches down about 40ft.,

but when you let the lead down the ice is found at 80ft., and even more, showing how the great ice is packed. At times the "floes" are easily broken up, that is, when the ship strikes the ice on the line of cleavage. On other occasions some hard blows are necessary to force a passage, and as the ice is covered with snow it is very difficult to judge a soft place. Generally speaking, a soft place (to all appearances) turned out to be quite the reverse. However, all this time the ship was steadily proceeding north. The object in entering the Polar ice immediately to the north of Spitzbergen, instead of further to the eastward as has been customary heretofore with arctic expeditions, was that should any accident happen to the propellers, the ship would, through time, if disabled, drift out of the ice with the Polar stream to the eastward of Greenland.

The "Ermack," with half boiler power, could force her way through Polar ice of 12ft. to 14ft. thickness at $2\frac{1}{2}$ to 3 knots an hour; where the ice was slack this speed was exceeded.

The first occasion of seeing a Polar bear caused much excitement amongst all hands, rifles and cameras doing great execution. This bear was shot whilst swimming from one floe to another, and from this time we saw many others. A Polar bear is not dangerous until wounded, or unless he is very hungry, and even then he prefers to run away if he can. It is most interesting to see the mother's care of her cubs: when startled by the ship the she-bear always kept her cub on the side away from the ship. On one occasion a family of three paid a visit, and the cub was first wounded; the desperate attempts of the parents to help this young bear over the ice were most pathetic, but a lucky shot killed the cub; the she-bear then rounded on the he-bear and punished him most severely, thinking, no doubt, that he was the cause of the death of her cub. This contretemps allowed the hunters to come up and all three bears were secured. The skins of these and others were preserved in barrels, and the flesh, which was generally fat, was salted and preserved for use in some of the first-class restaurants of St. Petersburg, where it is considered a dainty. The heads were boiled until nothing but the skull remained, and are trophies of an interesting and rare character. The cub above mentioned was stuffed and now is a splendid ornament in the main entrance of the vessel.

A large amount of scientific work was undertaken, amongst which deep-sea sounding in the Polar Ocean, and the taking of temperatures of the atmosphere and water, and samples of sea water at varying depths, are the most important. The samples of sea water are obtained by an instrument called a "matometer" (the invention of Admiral Makaroff). It is a metal bottle encased in india-rubber, with automatic valves at the top and bottom. As this is lowered into the sea the water flows through the bottle, but as soon as the downward action ceases, the valves

close, and the sample is retained, and as the bottle and valves are insulated by the india-rubber coating, the temperature remains constant until the operator has an opportunity of testing it by the thermometer. The temperature was also taken by automatic deep-sea thermometers, but these are not very reliable owing to their liability to fracture. It is a long and tedious operation sinking the matometer by hand to 1,600 fathoms and bringing it up again!

Astronomical observations for the true position of the meridian had also to be made when the sun condescended to show himself. The astronomer had to go more than a mile from the "Ermack" to be beyond the influence of the magnetic force of the ship. His instruments, a tent to shelter him from the wind, his kettle (a Primus, the same as Nansen used), and rations for himself and his two guards, were all packed on a sledge which was drawn or carried over the ice in an ice boat. It was necessary to send two men to keep guard over him, as his observations (if the atmosphere kept clear) extended over the greater part of the day, and the guards had to keep a look-out for bears, fogs, or the parting of the ice floe. Even the guards had to be fifty yards from the astronomer to prevent magnetic influence from the rifles disturbing the instruments. Simultaneously a "look-out" was kept from the crow's nest at the ship so that should fog, or snow, or ice parting occur, all was in readiness for a rescue. The observations of the atmosphere, the force, the wind, direction of the currents, and the drift of the ice, sketching and painting the ice fields, photography, and recording the pressure and depth of the ice, were an all-absorbing study, to which the whole time of those on board was devoted. The scientific investigation of the ice took up a large amount of time, and 129 samples were tested for specific gravity, salinity, buoyancy, strength, both in compression and tension, melting temperatures and the configuration of the ice; this latter is a great problem, as the formation of the ice is of so many different descriptions, and no doubt the surrounding conditions affect it in a very great degree. Masses weighing five tons were brought on board for investigation: the refreezing of the ice that had been melted produced some very pleasing results. When time allowed, snow-shoeing was much indulged in, most of us coming "croppers" at the commencement; going for walks and climbing the hummocks, shooting bears and seals were other sources of exercise.

The divers were sent down occasionally to see that all was well below the water level, and great care and attention had to be given at these times, for should the ice close tightly to the vessel, the diver would have lost his life.

Of animal life, at high latitudes, the Polar bear is most common, then seals, walrus, and narphals, and we have even

seen a shark; he came after a bait we had out, but missed it, and whilst turned over on his back the hunter (Permikoff) jabbed a boat hook into him, and rushed him on to the ice, where he was secured. This specimen was 7ft. long, and had a splendid mouth of three rows of teeth, top and bottom. His flesh was excellent eating. Of birds, as soon as we passed through the drift to the solid ice, we left all the various divers behind, and only the large grey gull, the ivory gulls, and the little auk remained. This interesting little bird was with us at all times, and his shrill cry sounds very weird in these lonely and quiet regions. The only other bird far north was the beautiful ivory gull, spotless white, with a yellow beak and



AN ICE PACK.

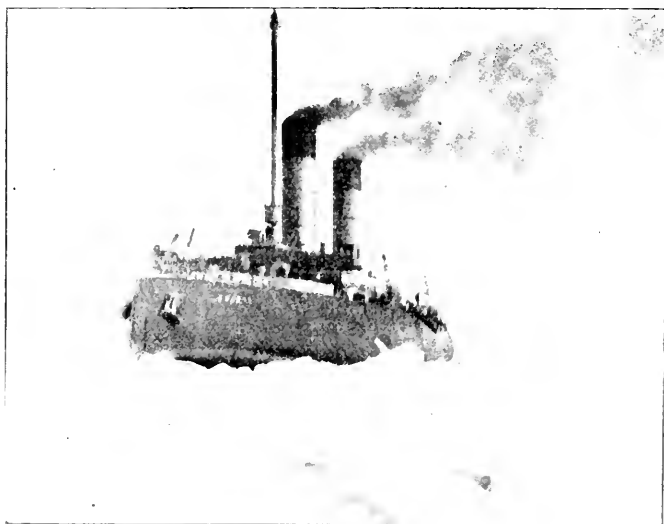
black legs. He is easily shot, as, having never seen human beings, he fearlessly approaches the vessel. We have seen these gulls following the ship when under way, and gorging themselves on a small fish that lies near the surface, and as the ice is disturbed he can feed on these until he can eat no more.

A keen look-out was kept for Ross's gull, but we were never fortunate enough to see one.

The sight from the bow and bridge of the "Ermack" when she is forcing her way through the ice is at all times remarkable, and so fascinating that one is quite unable to tear one's self away from watching the scene of the moving floes pressing on one another, turning edge upwards, the destruction of the hummocky ice, the rip of the solid ice when the ship breaks it.

and the yawning blue chasm that forms as far down as the keel until the ice opens at the bottom of the fracture, and the sea rushes up.

At times it was necessary to push the large floes apart: in such cases the "Ermack" was put at a spot where we thought the floes would part, and then, after some minutes of pushing, we would notice one floe beginning to move from the other. On occasions we have seen these floes of great size: in the Paleocristic ice we very seldom saw a floe less than 500 tons in weight, and amongst this class of ice considerable judgment had to be exercised in handling the vessel. On this ice it is easy to examine the propellers when standing on the edge owing

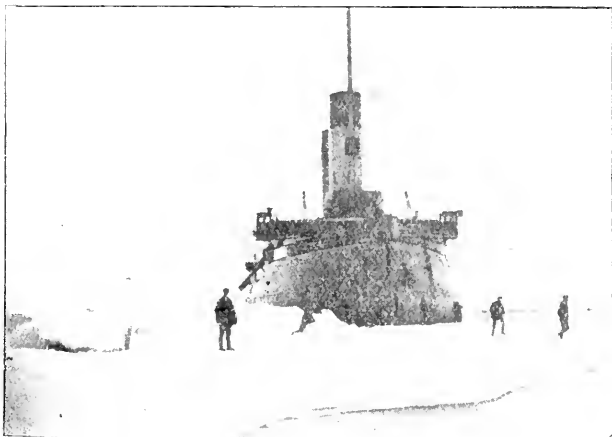


ERMACK PASSING THROUGH GULF OF FINLAND ICE AT NINE KNOTS AN HOUR.

to the transparency of the sea. Large ponds, or lakes, of fresh-water melted from the snow and frozen over are met with in many places, sometimes a number of them with canals in the ice from one to another. When the sun does shine melting soon commences, and large masses of water collect on the ice. We pumped a great deal of fresh-water into the tanks of the vessel from these ponds for the use of the boilers, and washing purposes. A fresh-water lake and ice were always of the brightest and deepest ultramarine blue, but a lake or pond that had a communication with sea-water was emerald green. The packs of ice are at times of very large dimensions: we have met them 25ft. high above the field in places, in some packs even more.

Some very good cinematograph pictures were taken, and when shown they give a very graphic idea of the ship charging amongst the ice, and the manner in which it is tumbled and pushed about by the vessel. Occasionally a large piece of ice would come up from below and strike the "Ermack," making the ship shake.

We met icebergs, but one does not visit icebergs too closely with a steamer, owing to the extreme hardness of the ice and other dangers. On one of them where we landed there were large remains of the moraine, and some specimens were brought away for geological research. Some of the icebergs were of enormous size, standing up like mountains, 200ft. high—to all appearances like islands amongst the ice.



ERMACK IN POLAR ICE 81°-26' NORTH.

The time came when, owing to the freezing of the new ice going on continuously, and the ship being some 200 miles into the Polar ice, and the absolute necessity of getting south in time for the "Ermack" to return to her station in the Baltic, the ship's head was turned homewards, and then commenced our greatest struggle, as the ice had closed tightly around us, and it was a long continuous fight to the clear water. At times we have been charging and hammering at floes of rough packed ice of enormous hummocks for one or two hours before breaking down the obstruction, and having almost to retrace our course to get round some hummock of large dimensions.

During this time it was bitterly cold, and the snow, accompanied by wind, made the atmosphere far from pleasant. The ice pressure appears to be more affected by wind than other causes, such as currents. No doubt land—even at a great dis

tance—the rise and fall of the tides, especially the spring tides, have much to do with these pressures, but patience is always rewarded in course of time by an easing of the ice, and at times the pressure must have been gigantic to result in the enormous packs and rough ice we observed, and indeed have been amongst.

After leaving the ice the ship proceeded to Advent Bay as this was our rendezvous, and we had to advise our tender of our return. The climate had changed much during our absence, and winter was upon us. In Advent Bay we found the large yacht "Princess Alice," belonging to His Highness, the Prince of Monaco; visits were exchanged, and as the Prince is much interested in oceanic study and problems, his yacht is fitted out to meet his desire in studying the ocean in a very refined and scientific degree. He had been cruising on the ice edge to the north of Spitzbergen, during the summer months.

Advent Bay, situated 22½ miles from the entrance to the Fiord, is a most desolate spot surrounded by mountains, whose heads are always in the clouds, but when the sun shines the scenery is truly magnificent. There is absolutely nothing green, as the island and the valleys are filled with huge glaciers, but coal of fair quality is plentiful in Ice Fiord, the seams coming to the water's edge; the Norwegian sealers often call here to fill up with it. There is very little game, as the reindeer has been nearly shot out. The fishing is poor, and the blue and white fox are very scarce. Gulls and sea birds abound during the short summer. On the rubbly spit of land at the entrance to the bay is seen the small cemetery, where those who have died far from home are buried, and the remains of two huts that have in years past sheltered shipwrecked crews who have had to pass the winter amid this scene of desolation. The intense stillness of the spot seems almost to numb one's senses, and produces a peculiarly restful feeling of the body and nervous system.

Our stay here was short, and, after a very stormy passage, we were, I believe, all glad to be once more inside the Tyne, and feel that to no one had an accident happened, and that all who left with the ship had safely returned.

THE ISLAND OF SANTA CATALINA, CALIFORNIA.

(Communicated by our Travelling Member, Mr. A. J. KENNEDY, F.R.G.S.).

TO reach Catalina Island from Los Angeles we take the train to San Pedro, a small shipping town 24 miles south. *En route* we pass Florence, a little village in the heart of rich agricultural country. It has good schools, a church, stores, etc., also a vineyard of 3,000 acres. We take the boat at San Pedro for Catalina Island, discovered by the Spaniards in 1542. The Island is 22 miles long, 7 miles wide, and 65 miles circumference. The highest peak is 2,500 feet. Avalon, the only town on the Island, which is the property of the Banning Brothers, has one good hotel, a number of wooden shops and boarding-houses, curio stores, saloons, etc., and a dancing pavilion and golf links. Amongst the hills are quail and wild goat, and free permission can be had within certain limits to shoot them. Another small settlement named Isthmus is now, 1901, being founded. The Pacific Ocean in the vicinity of Avalon is renowned for a fish named black bass. They are of immense size, the largest caught weighed 459 pounds, and measured nearly 7 feet in length. They are taken with a rod and reel and 21 thread line, as also are the leaping tuna, another marvellous fish, one of the most active and the most gamy in existence. The heaviest tuna caught weighed 251 pounds, and measured about 6 feet. After this fish has been caught the boats containing the sportsmen are often towed by the fish from one to twenty miles before the fish is brought to gaff. The time from catching the fish to landing it is from thirty minutes to fourteen or fifteen hours. The fish are taken into smooth water within a few hundred feet of the shore. The sport is novel and delightful. The rushes of this fish during the summer, and the flight of the flying fish in attempting to escape from it are the features of the locality. The fish strikes on the rush, bounding into the air sometimes ten or fifteen feet—a magnificent spectacle. It then makes a rush that takes 600 feet of line before the brake stops it. The boat is dragged through the water as though a tug was towing it. When a school of tuna is chasing the flying fish, numbers of them may be seen in the air at the same time, the tuna catching his prey literally on the wing. At this particular time flying fish shooting is indulged in. During the fishing season prizes are awarded to visitors catching and landing the largest sea bass and tuna.

Other fish is caught, and amongst them is the yellow-tail, a gamy creature having some resemblance to the salmon, but a much harder fighter. They range from 17 to 80 pounds. Albacore is also caught, and also the blue shark. The season for fishing begins in May and ends for the large fish in September. The Catalina Island winter season is from January to the last of May, but the climate is delightful all the year round.

The average temperature at Avalon in July is 63°—in January it is 54°, whilst the temperature on the ocean in August is 70°. The Marine Gardens are a feature of the ocean, along the coast of Catalina Island, particularly about Avalon. It is a wonderful and natural aquarium. Here are glass bottom boats through which visitors peer at the wonders of the deep. The water is so clear that you can easily see a depth of from 60 to 100 feet, discerning every living creature at the bottom very clearly. Some of the boats are like house boats, holding 20 people, and are propelled by gasoline engines. Others are row boats, each having an awning as a covering. Down the centre of the boat is a thick plate-glass, substituting the wooden bottom. It is walled in from the inside like a box, the sides of the box, being painted black, serve as arm rests, so that one can gaze through the glass bottom at the denizens of the ocean in their native homes and gardens. It certainly provides a marvellous entertainment.

There is a perfect forest of seaweed of all kinds and of all sizes, much being in blossom: some like moss clinging to the rocks, others remind one of the big trees of California, and others again are like the shady palms so common in Los Angeles and district, and the variety and display of colouring are equal to any land garden ever designed, all the ground work being rock covered by lacy seaweed of the finest texture, and swimming amongst the seaweed are fish of all kinds. These include the electric fish, salt water gold-fish, blue perch, tom-cods, star fish, sea cucumbers, urchins, etc., with rare and radiant tints.

The sea voyage from San Pedro to Catalina Island is also full of interest. Shoals of whales are often passed on the way, and seals are in great numbers. Around Avalon Bay, seals are nearly always to be seen. They are encouraged by the fishermen, who feed them with fish caught by the visitors. And about three miles along the coast are the seal rocks, where the seals are to be seen in large numbers. The seals and birds along the coast are protected by the State. Visitors are not allowed to shoot them.

A CONICAL SURFACE EQUIVALENT PROJECTION.

By MR. C. E. STROMYER.

[Addressed to the Society in the Library, Tuesday, February 12th, 1901,
at 7-30 p.m.]

AT the Seventh International Geographical Congress held in Berlin in 1899 Professor Penk referred to the little progress which his Committee had made towards the realisation of a resolution adopted at previous Congresses as to the desirability of constructing a map of the world on a uniform scale of one per million, and then repeated his proposal for the reconstitution of his Committee, to which I moved an amendment, which was finally embodied, that the first step to be taken should be to settle on a uniform system of projection. In the paper which I subsequently read at the Congress the advantages of the surface equivalent projection were explained.

A model globe of the earth to a scale of one per million would have a mean semi-diameter of 6370.687 metres, or 250814 inches or 20901 feet. This is a large radius, and on a span of 43 inches, which is the diagonal measure across an ordinary atlas sheet, would show a rise in the centre of only $\frac{7}{8}$ inch. If therefore there were a demand for an atlas with embossed sheets, which would of course give all information, areas and directions, with absolute correctness, publishers would find no difficulty in producing such a one. This, however, is not the proposal accepted by the Geographical Congress; the resolution expresses a wish for a flat atlas, but as yet nothing definite has been settled as to the sizes of the individual sheets, except that they are to be bounded by lines of latitude and longitude, and, as already mentioned, nothing has been settled as to the system of projection to be adopted.

A large number of projections have already been invented, and each system possesses special advantages of its own, but for modern requirements the correct rendering of areas seems to be one of the essential points. If other advantages can be combined with this one so much the better. Lambert invented several surface equivalent projections, some of which are not infrequently used, but these suffer from the inconvenience either of the shapes, *i.e.*, directions, being distorted or of the latitudes or longitudes being lines of varying curvature. One of his projections, of which I have only recently become aware, and of which I have been unable to discover any representation, is called by Germans "Lambert's ispherical stenoteric projection."

It consists of a surface equivalent projection on a conical mantle of 90° , and is doubtless well suited for a belt of the latitude of 45° . My proposal consisted in a similar projection, but for a series of angles. The whole atlas would consist of sheets cut from conical mantles, whose open angles would step by step change from 180° at the pole to 174° , 162° , 150° , etc., each zone being 6° wide (66cm. or 26 inches). Instead of having separate sheets each sheet could be joined to its east and west neighbours, thus forming a long folding sheet, and if the odd and even belts were to be bound in separate volumes, there would be no difficulty in placing the adjoining zones together when this is desired.

The construction of these sheets would be a simple one, for all the meridians would be straight lines, while all the latitudes would be true circles. The distances between the lines of latitude would be equal to the difference of their distances on the globe as measured from the apex of each cone.

There is no absolute necessity to restrict oneself to thirty-one narrow zones of 6° , for even when these are made 18° or even 30° wide the distortions near the centre and near the margin are so slight that they can hardly be measured on paper, but of course these zones would have to be subdivided to suit the size of the atlas. There would, however, be this advantage, that by pasting together several zones, photography could reduce them to a smaller scale, which would be a great advantage. The following table shows how much the north and south distances are shortened and the east and west distances lengthened near the margin of the zones, and *vice versa* at the centre of the zones:—

Number of Zones	31	16	11	7	6
Width of Zones—Degrees	6	12	18	30	36
Distance error, Horizontal) Per	0.07	0.27	0.6	1.7	2.4
and Vertical, at Margin) cent					
and Centre of Zones ...) Inch	$\frac{1}{15.66}$	$\frac{1}{37.6}$	$\frac{1}{9.6}$	$\frac{1}{6.6}$	$\frac{1}{4.6}$

The map of the world shown on the wall consists of seven zones. If therefore a one inch circle were to be drawn say on the equator of the globe, its projection on the chart would also be practically a circle, except that its horizontal diameter would be contracted so as to fall just inside of the very finest ink line ($\frac{1}{12.6}$ inch) which a pen can draw, and the vertical diameter would just extend to the outside of the circle. Measured at an angle of 45° the diameters are of course correct.

The wall map shown is to a scale of one in twenty millions. It is two metres long and one metre broad, and therefore of about the same dimensions as the usual wall maps on Mercator's projection. Unlike these, the areas are absolutely correct, neither the northern nor southern latitudes being distorted, and above all, both the North and South Pole are shown. An advantage of this map—at least for educational purposes—is that by cutting out the zones, joining their ends so as to form truncated cones, and then pasting them together, a polygonal globe of 25 inches diameter can easily be constructed.

I hope that at some future date this matter may again be taken up, and that then perhaps this Society may decide on the most suitable scale or induce some of its members to draw a map to a scale of say one per ten or twenty million. It would be a valuable addition to the library, and if printed might be a source of income.

NEW BOOK.

THE GOLD OF OPHIR, WHENCE BROUGHT AND BY WHOM? By Professor A. H. KEANE, F.R.G.S. Preface. Contents. 196pp. Map and facsimile of Himyaritic Rock-inscription. Notes and Addenda 32pp. and Index.

THIS is a most instructive book, and to all those who are interested in the subject the result of Professor Keane's researches as herein set forth will amply repay perusal. To those who have not followed very closely the results of modern research in Madagascar, South Africa, and Southern Arabia, the book will be a delightful revelation. Professor Keane points out that the accumulation of knowledge bearing on the "Ophir question" has of late years become so great that since "the re-discovery of the Zimbabwe monuments in the present Rhodesia, materials have accumulated from various quarters which justify the re-opening of the subject, and have seemed to me amply sufficient for its final settlement." In fourteen chapters and copious notes and in the addenda, he reviews our previous knowledge or conclusions, and then bringing to bear the result of new knowledge he finally concludes his book with a number of statements such as "1. Ophir was not the source, but the distributor of the gold, &c., brought from abroad to the courts of David and Solomon. 3. Havilah was the auriferous land whence came the 'Gold of Ophir' and Havilah is here identified with Rhodesia," etc. 5. "Tharshish was the outlet for the precious metals, and Havilah stood probably near the site of the present Sofala." In 6, 7, 8, and 9 he deals with the questions of trade from the emporium of "Ophir," of Mount Sephar, and the connection of the Queen of Sheba with the South Arabian commercial metropolis. From his arguments and facts as stated by him his conclusions seem to flow naturally. But in addition to the value of these definite conclusions there is opened out such a vista of knowledge of these early times in relation to the works, movements, trade routes, and history as is most surprising. We strongly recommend the members of the Society to make themselves acquainted with this remarkable book.

DESCRIPTION OF THE DOMINION OF CANADA—PHYSICAL FEATURES.*

THE Dominion of Canada occupies all the northern half of North America, except the bit at the extreme north-west, called Alaska. This formerly belonged to Russia, and was sold to the United States, in 1867, for the sum of seven million dollars, or about £1,400,000. Canada is almost as large as the whole of Europe, and larger than the United States, without Alaska. Running along the west side of the country, from north to south, is a range of mountains, called the Rockies. They extend in an unbroken chain from fifty to four hundred miles wide at the base, and rising in some of the higher peaks to a height of over three miles. Between the mountains and the Pacific lies British Columbia, broken by many smaller ranges. To the east of the Rockies stretch the prairies and the older provinces, with Hudson Bay and the Atlantic Ocean beyond.

To the north of Canada lies the Arctic Ocean; to the west the Pacific. The United States and the Great Lakes form the southern boundary, while eastward the country stretches to the Atlantic. On the west coast are several fine harbours, the best of which are Esquimalt, the station of the North Pacific squadron of the British Navy; Vancouver, the terminus of the Canadian Pacific Railway and the starting point of steamers for Australia and Japan; and Victoria, the capital of British Columbia, situated on Vancouver Island. There are many harbours on the east coast. The best-known are Halifax and St. John, the latter on the Bay of Fundy. The Gulf and River St. Lawrence for seven or eight months in the year open a splendid waterway for the ocean steamers to the ports of Quebec and Montreal.

On the north-eastern coast is Hudson Bay, a land-locked sea, as large in area as France, Germany, and England together. This great inland water is entered from the Atlantic by a strait 400 miles long. Into it every year comes the supply ship of the Hudson's Bay Company, which brings supplies of all kinds and goes back loaded with valuable furs, thus keeping up an interesting link with the old French days. Many people expect that before long a railway will be built from Winnipeg to the Bay, and a line of large steamers established to give a more direct route to England for the wheat and cattle of Western Canada.

In Canada the rivers, plains, and mountains are on a very large scale. Along the southern edge of Ontario from the head of the St. Lawrence River stretches the most wonderful chain of fresh-water lakes in the world. They extend for over a thousand miles westward, and one can sail all the way in a large vessel. Lake Ontario is as large as Wales, and Lake Erie a little larger. Lake Huron is as big as Belgium and Holland together, while if Scotland were put into Lake Superior, the largest of all, one would see nothing but a few mountain peaks. In the north-west are lakes like Winnipeg, Great Slave, and Great Bear, each of which is larger than Lake Ontario. By a system of canals to

* By permission of the Canadian Government. From a capital little text-book, "Canada, by Mr. E. R. Peacock, M.A., Upper Canada College. 104pp. and map. 1900.

overcome the rapids, a continuous waterway is open for steamers drawing fourteen feet from the Atlantic Ocean to the head of Lake Superior—a distance of over two thousand miles. It is intended, as soon as possible, to make the canals deep enough for ocean ships. Then a steamer from Liverpool (or Manchester) will be able to sail into the heart of the country, unload its cargo for Western Canada at Fort William, and reload with grain, cattle, horses, or dairy produce for the British markets.

Into the basin of the great lakes run hundreds of rivers, draining all the country round, and supplying water power which will yet be used by many a factory and mill. The lakes and rivers are richly stocked with fish. The lake fisheries are very important, and give to Ontario one of its chief industries. The rivers offer sport to thousands, for the fish are many, and any one may catch them. There are no preserved waters or private rivers, except at a few points in the east. The country north of Lake Superior is a sportsman's paradise, for hunting, as well as fishing, is of the best. Deer of various kinds and all the different wild fowl are there in great numbers, and may be hunted during the open season.

Into the Pacific Ocean, through British Columbia, flow the Fraser, the Skeena, the Columbia, and the Stikine. The Columbia and the Stikine enter the ocean through United States territory. The rivers of British Columbia are the world's greatest salmon rivers, and in the sand of most of them gold is found. Into the Arctic flow the Mackenzie, the Back, and the Coppermine. The Mackenzie is a very large river, and receives several important tributaries. The Yukon enters Behring Strait through Alaska, but farther up it flows through Canadian territory, which has become famous owing to its goldfields, and is known as the Yukon district. To the east, we find the Athabasca, Peace, Nelson, Churchill, Severn, Albany, Saskatchewan, and many other rivers, all navigable for hundreds of miles. And then we come to the noblest of them all, the St. Lawrence, which drains the great lakes, and offers to the traveller from Europe the most picturesque and interesting entrance to the North American continent. The Atlantic steamships sail up the river past the ancient city of Quebec, with its quaint architecture and massive fortifications, to Montreal, the commercial metropolis of Canada.

Let us take an imaginary journey from Montreal to the head of navigation, noting some of the most interesting features as we pass along. We go by steamer up the river to the city of Kingston, where we enter Lake Ontario. On the way we pass through several canals to avoid the rapids, but if we were coming down, the steamer would run the rapids—a most exciting experience. We also cross the Lake of the Thousand Islands, one of the most beautiful spots in the world, and the summer resort of thousands of tourists. After a trip of one hundred and fifty miles across Lake Ontario, we go through the Welland Canal to Lake Erie. This is to avoid the Falls of Niagara, which prevent ships passing up the river. While the vessel is going through the canal we can run over by rail and have a look at the great falls—one of the wonders of the world. The Niagara River, the outlet of Lake Erie, suddenly flings itself over a perpendicular cliff a hundred and fifty-eight feet in height. Within recent years the enormous water

power of Niagara has been turned to practical uses, and drives large mills and electric railways. In the form of electricity it is transmitted to neighbouring cities, and thus we have machinery driven by the falls which are many miles distant. A long sail over Lake Erie brings us to the Detroit River. More ships pass up and down this river than at any other point in the world. These are employed in the inland navigation of the continent, and many of them are as large as ocean ships. They carry grain from Fort William, Duluth, and Chicago to Buffalo, Kingston, or Prescott; iron ore from the mines round Lake Superior to Cleveland, canned meats from the great packing houses of Chicago for distribution all over the world. Others are loaded with lumber from the forests of Georgian Bay and Michigan, salt from the wells along Lake Huron, copper from Parry Sound, and countless other commodities. If we stop here for a short time we shall get some idea of the immense traffic of the lakes. Up and down before us pass the vessels in such quick succession that a steamer goes by every minute. Let us board one of the passenger steamers and continue our journey. We pass through Lake St. Clair and the St. Clair River into Lake Huron. If we were going to Chicago we should turn slightly to the left and presently enter Lake Michigan. Instead of sailing straight across the lake, we shall turn to our right when part of the way up and enter Georgian Bay, in order to enjoy a sail through some thirty thousand islands. The scenery here is beautiful, while the fishing and boating are excellent. Passing Manitoulin Island, where there is still unclaimed land for settlers and where many fishermen live, we enter the St. Mary River, and soon reach the village of Sault Ste. Marie. Here, in old days, the Indians tortured the Jesuit missionaries; but the Indians are gone, and we find a thriving town, rapidly becoming an important manufacturing centre, where pulp mills have been erected, which are said to be the largest in the world. At this point we must pass through a canal in order to avoid the rapids, and may go either by the American or Canadian side. Everything works by electricity, and we are soon through, along with many other vessels. The navigation season lasts only about eight months each year, yet during that time a greater tonnage passes through these canals than goes through the Suez Canal in the whole year. On reaching Lake Superior we have a sail of four hundred miles ahead of us, over a lake which is the largest in the world, and yet whose water is as clear and cold as that of a mountain spring. At the head of the lake we find Port Arthur, and Fort William, with its huge elevators, from which most of the grain of Western Canada is shipped.

The Dominion of Canada occupies half a continent, and naturally the climate varies greatly in different sections of its immense area. It has been pictured as a great wilderness of snow and ice, with a narrow fringe of habitable land running along the edges, but that idea has been long exploded. Away to the extreme north, along the Arctic Ocean, such conditions prevail, but in no other part of the country. The sub-arctic climate extends southward over the barren plains for a considerable distance, particularly on the east side of the continent. But it soon begins to moderate, especially in the centre and west; and when the united districts are reached, we find in the north and east the clear, dry cold of winter and heat of summer. This climate is extreme,

but exhilarating, and much more endurable than a milder but moister climate. In the west the *chinook* winds from the Pacific sweep over the plains and prevent the extremes that are experienced further east. Beyond the mountains, in British Columbia, the climate is generally mild. On the coast it is very mild. In Eastern Canada the climate is subject to extremes, but in the southern part of Ontario it is much modified by the presence of the Great Lakes, as is also the case in Nova Scotia and Prince Edward Island, owing to the sea breezes. Fogs are frequent along parts of the east coast in the spring and autumn. The snow-fall in the east is much heavier than that in the west. There is usually good sleighing for three or four months in New Brunswick, Quebec, and Northern Ontario. The southern part of the latter province gets very little snow, and the same is true of most parts of British Columbia. There is a fair snow-fall in the Territories, which in the western part, however, is soon swept away by the chinook.

TABLE OF STORM WAVES AND WINDS.

The enclosed wave table is forwarded for perusal and consideration, and publication at convenience in the Magazine, in consequence of attention being drawn to Mr. Cornish's contribution on "Waves" in the papers. This table was constructed about 1889 from personal observation for some seasons at various seaside resorts and ports, and ships, and was based on Professor Thomson's lecture, August 3rd, 1887, at the Congress of Engineers in Edinburgh Museum.

The basis of this scale is intended for practical purposes to be the number of waves per minute ascertained by a watch at the time on deck or on shore. The maxima have been stated to be under 20, and the minima above 3 per minute, which are therefore held to be the extremes of the scale from calms to storms. Correction will require to be made for obliquity from directness of passage each time, and $\frac{1}{4}$ to $\frac{1}{2}$ or $\frac{1}{3}$ more added according to increase of angle between wave and ship's or shore directions. Velocity of waves in feet per minute or miles per hour can also be observed at the time by the length of the ship or pier, which will indicate the height of the waves by estimation from their heights also.

SCALE OF WAVES AT SEA FOR WEATHER RECORDS.

Nos.	Class. Name.	Length. Feet.	Number per Min.	Height Feet.	Velocity. Miles per Hour.	Feet per Min.	Winds. B. S. Force. 1-12.	Per Hour. Miles.
1	Ripple	10	20	1	2.27	210	1	8
2	Wavelets	20	16	2	3.6	320	2-3	13-18
3	Smooth Waves	50	12	4	6.8	600	4-5	23-28
4	Crested Waves	100	8	7	9.0	800	6-7	34-46
5	Storm Surge	200	7	10	16.0	1400	8-9	48-56
6	Storm Rollers	400	6	20	27.0	2400	10	60-65
7	Cyclone Billows	600	5	30	34.0	3000	12	75
8	Cyclone Amalgamate.	800	3-4	45	37.0	3200	12	90

W. G. BLACK, F.R.M.S.

2, George Square,
Edinburgh, June, 1901.

PROCEEDINGS OF THE SOCIETY.

JULY 1ST TO SEPTEMBER 30TH, 1901.

PORT SUNLIGHT.

Visit of the Society on Thursday, July 11th, 1901.

A party of members, having received permission, visited this village and works. The day was exhaustingly hot, and the walk from the ferry overpowering. We found we had blundered in going to the ferry, and returned to Birkenhead by electric tramway.



AT THE DOOR OF THE BRIDGE INN.

We saw the outside of the village, but for some reason were not allowed to see the inside of the houses, a show cottage being set apart for that purpose we did not see.

We were allowed to see a small part of the works from raised gangways, from which we saw box making, a very complete printing works, travelling tables with what looked like soap taken off rapidly by girls, and we saw railed off some vats with apparently boiling contents. We tried to obtain some information from our guide, but were unable to do so, but were presented with a pretty and well-printed guide book, most of which we did not see.

We had a satisfactory tea at the hotel, and admired the Gladstone Hall, and then had time to make excursions to Bidston and New Brighton.

The *Daily Dispatch* gives the following account of the visit:—

"Seldom indeed does a day pass, particularly in the summer season, without an excursionist invasion of Cheshire's model village, Port Sunlight, three miles from Birkenhead. The inhabitants of that far-famed colony are well accustomed to the troops of inquiring strangers who go up to their front doors and ask them all sorts of pertinent—and impertinent—questions concerning rents, wages, conditions of life, and so forth.

"To the ordinary observer of humanity a few days spent at Port Sunlight afford an interesting study, not so much, perhaps, of the people living therein as of the wide diversities of character to be found among those who



MODEL HOUSES, ENTRANCE TO VILLAGE.

visit the place, either as holiday makers, curiosity seekers, or students of social questions in search of information. Monday brings, we will say, the crowd of trippers from the industrial establishments of, perhaps, some Lancashire cotton town, who are interested in the place mainly out of sympathy with fellow workers. On Tuesday a delegation of learned persons from the Continent; Wednesday, a mothers' meeting, the members of which are more competent to discuss the merits of the tea sold at the 'Bridge Inn' than to debate the idea of a model industrial village community from the economic standpoint; Thursday, a party of sailors who had touched at Liverpool; Friday, a school treat; and Saturday, a miscellaneous assortment of week-end trippers, whose tramp round the soap works is promptly followed by a high sort of evening at New Brighton.

"That is a fair sample of an average week's programme. To the mind of each of these types the unique works of Messrs. Lever Brothers possess some specially attractive features, but the one thought entertained by all is of wonder at the powers of initiative which have resulted in the completion of such a colossal private enterprise. It is an old story to tell of the sights to be seen at Port Sunlight—a place which has been boomed by excursion caterers, admired by business men, and criticised by social reformers. A party from the Manchester Geographical Society visited it the other day, and, like the thousands who have been before them, found plenty to interest and think about. It was one of the many pleasant little jaunts with which the "close" seasons between the winter periods of lecturing are occupied,



MODEL HOUSES IN VILLAGE.

and under the guidance of the secretary it may be taken for granted that the outing was enjoyable.

"Port Sunlight does not present many fresh features as compared with a year or two ago. The workmen's houses are constantly being increased, and one begins to wonder when the architects' ideas for varying the designs and arrangements of the cottages will give out. The completeness with which ivy and evergreen are enveloping the walls of the older dwellings reminded one rather rudely that a few years have flown since Messrs. Lever Brothers started to convert 220 acres of grazing land into the huge industrial establishment of the present day. The decree has gone forth that the evergreen is not to be allowed to prey on the timber beams forming the upper storey of most of the houses, and it has accordingly been cut and confined to the brickwork. In the interests of the preservation of the property,

perhaps, this was a wise action. Well, it does not matter much, for the cottages are pretty enough to look at, without the additional embellishments, even of Nature's handiwork.

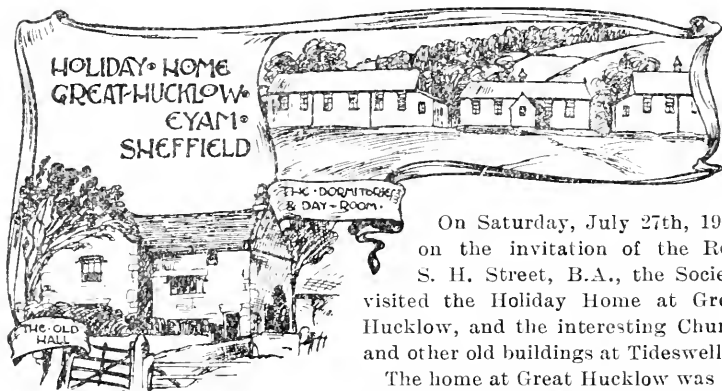
"Whatever may be the ideas entertained on the question of rent and the desirability of employers holding also the position of landlord to their workpeople, no one will deny that the village of Port Sunlight is in its communistic life as complete as any to be found in the world. There are now getting on for 700 houses in this remarkable place laid out in ample grounds, and with every effort to avoid the deadly monotony and stereotyped patterns to be found in most towns. No two blocks of cottages are alike. Just beyond the border of the estate a Liberal Club is in course of erection, to add another to the many places of resort with which the workpeople are provided."



VIEW OF WORKS FROM VILLAGE.

GREAT HUCKLOW, DERBYSHIRE.

Visit of the Society on Saturday, July 27th, 1901.



On Saturday, July 27th, 1901, on the invitation of the Rev. S. H. Street, B.A., the Society visited the Holiday Home at Great Hucklow, and the interesting Church and other old buildings at Tideswell.

The home at Great Hucklow was established by the Manchester District Sunday School Association to enable the Sunday scholars and their teachers to have a week's holiday together in fresh and bracing country air. For this purpose a plot of land was secured on a high, breezy place, surrounded (within short distances) by beautiful valleys, fine hill scenery,



and several interesting villages, such as Eyam, Grindleford, Hope, Castleton, and Tideswell.

The children visit these places with their teachers, and, in addition to the health-giving exercise they enjoy, the advantage is secured that the teachers, by close association, gain the personal affection of their scholars



Photo by Mr. N. Kolp.

SOME MEMBERS OF THE MANCHESTER GEOGRAPHICAL SOCIETY.



Photo by Mr. N. Kolp.

MEMBERS OF MANCHESTER GEOGRAPHICAL SOCIETY AT GREAT HUCKLOW.

and a more intimate knowledge of their characters and needs than they can do by their hour or two's meeting them on Sunday.

This year 1,200 children and teachers will be in residence. The buildings consist of large rooms, where the parties take their meals, and on wet days can play, while a piano affords the means of musical entertainment in the evenings; on each side of this are rooms fitted up for dormitories for boys and girls and the teachers, with lavatory accommodation and outside sanitary arrangements. There is also an ample kitchen, built outside in a separate building, and a room for stores. The whole is under the management of the Rev. Sydney H. Street, B.A.

We saw one hundred happy, sunburnt, bright children leave for Miller's Dale, and one hundred pale-faced children replace them.

After tea the Rev. Lawrence Scott told some of his experiences in Nyasaland, and spoke of Africa in general, an unexpected but very welcome addition to the pleasures of the visit.

Hearty thanks were given to Mr. Street for his hospitality, and to others who had assisted him in the reception of the members.

On the return to Miller's Dale the Church at Tideswell (the Cathedral of the Peak) was visited, the Old Grammar School, Townsend's Museum, and other places of interest in the village. The party arrived home in good time with memories of a very pleasant visit.

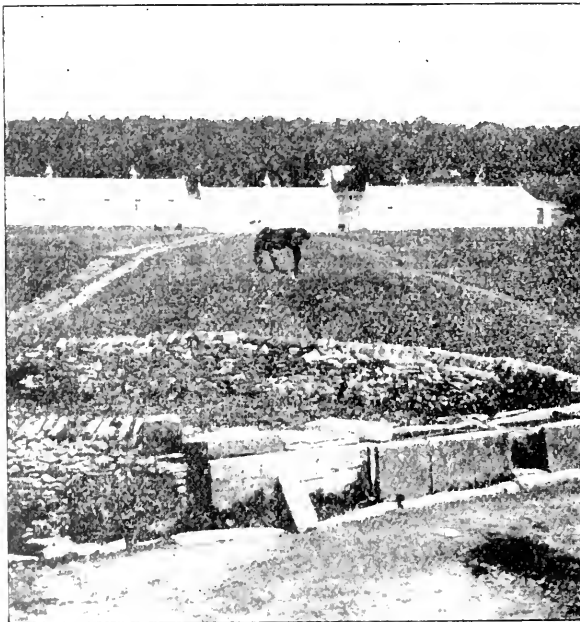


Photo by Rev. C. Peach.

GREAT HUCKLOW—FOREGROUND OF BUILDINGS.



FRONT OF MARPLE OLD HALL, JUNE, 1901 — (See page 147.)
(From Photograph by Mr. H. SOWERBUTTS.)

THE JOURNAL

OF THE

MANCHESTER GEOGRAPHICAL SOCIETY,



THE LIFE OF A WAVE FROM ITS CRADLE TO ITS GRAVE.

By Capt. W. NELSON GREENWOOD, F.R.Met.Soc.

[Addressed to the Society in the Library, on Tuesday, Nov. 19th, 1901,
at 7-30 p.m.]



CAPT. W. N. GREENWOOD.

IN writing the life history of the wave phenomenon of the ocean, which in one shape or the other is more or less familiar to all, it is requisite to draw largely on the imagination, particularly in the earlier stages of the inquiry. A life so intimately connected with the early vicissitudinarian story of our earth has necessarily left few reliable archives behind it, yet such records as we find of this early history are well marked in their individuality, and these, assisted by the imagination, coupled with extended observation of its phenomena as generally presented to us, have helped to form the groundwork upon which this memoir is based, and give an idea as to what the early life of the wave must have been.

VOL. XVII.—Nos. 10-12—Oct. to Dec., 1901.

On a stormy day, standing on the shore of any large river, estuary, or bay, such as Morecambe Bay, watching the incoming tide, what do we see before us? A broad expanse of water furrowed and crossed by many rolling ridges, that from far out to seaward, as far as the eye can reach, seem to be chasing each other shorewards, the tops of many of them lashed into white foam by the boisterous wind; whilst at our feet the broken waters of the waves, as they beat upon the shore, advance and recede with an ever varying constancy that at once excites our wonder and admiration. If we remain stationary for a little time we find that each advancing wave brings the margin of the water nearer and nearer to our feet, so that for comfort and to save a wetting we are obliged to seek safety in retreat higher up the beach. Thus, step by step backward, our different positions are forced with an insidious



From an original Pencil Sketch.

By M.G.

PLOVER SCAR LIGHTHOUSE, RIVER LUNE.

Three-quarters Flood.

persistence, until time puts a limit to the advancing water and an unseen force summons a retreat. The angry water, as if made more angry by the restraint placed upon it, then commences to recede; the billows increase in height and become shorter, with their tops more broken, but the retreat once commenced continues, until the sands are bare and the sea, just now as majestic in its wild magnificence, has gone we know not whither.

This phenomenon, familiar to us as the tide, is restrained by inflexible laws, both as to time and height, so that it is possible to say years beforehand, to within a few minutes, not only the time at which it will reach its height on a given day, but also to within a very few inches, what that height will be.

Looking down the "dark Corridor of Time," to borrow a phrase from Sir Robert Ball, into the dim and distant past, "when the Spirit of the Almighty moved over the waters" and with His breath, and in an appointed time "gathered them together and formed seas,"¹ we find the birthplace of the wave!

Through all the countless ages that have elapsed since that birthday, must our then infant wave have pursued its never ceasing journey towards a ripe maturity. What that infancy must have been we can only conjecture; one thing is certain, the tidal wave of the early ages of earth's history must have played a most important part in the economy of nature, and must have been stupendous as compared with the wave of to-day.

If we accept Professor G. H. Darwin's mathematical investigation as a true solution of the problem of the moon's origin, the tidal energy



From a Photo.

By A. Monsergh, Esq.

PLOVER SCAR LIGHTHOUSE, RIVER LUNE.

Low Water.

of that luminary must have been, in those early ages, something not easily understood. By the aid of figures, however, a faint idea may be formed of the condition of our wave, say, when the moon was at one quarter of her present distance from the earth—that is, when the earth and the moon were 60,000 miles apart.² At that distance her tide-producing energy, allowing the present mean tide height at six feet, would be equal to 192 feet above and below the mean level of the water, or the power to raise a wave 384 feet from the trough to the

¹ The primeval wave would be the solar wave of the molten mass of the earth before the moon was cast forth, its period would differ from water, and it is not considered in the wave we are treating of.

² The present mean distance of the moon from the earth is equal to 237,300 miles, and the semi axis of the orbit equals about 1,400 part the sun's mean distance from the earth.

crest. But when we remember that the tide-producing power of two forces, such as the sun and the moon in their relative distances are represented to be, varies inversely as the cube of the distance, a startling fact appears. At 48,000 miles distance, which is one-fifth of



LUNE AT HIGH WATER.

From a Picture.

By L. Walker, Esq.

the present, or one-fifth less than the 60,000 just considered, the power would be almost doubled, and would equal a wave 375 feet each way, or 750 feet from trough to crest.³

The mean height of the tidal wave over the whole of the earth's water surface is at present taken to equal 6 feet—that is, 3 feet above



PENNINE HILLS AS SEEN FROM LUNE RIVER.

Clougha Pike in the left hand distance.

³ Newton's theory of two forces is, that on the same particle they act directly as their mass and inversely as the cube of their distances. When one power is considered only, the rule is, directly as the mass and inversely as the square of the distance.

and below the mean level of an ordinary tide. If the tides of Morecambe Bay, then, bore the same proportion to the mean that they do at present, the wave visiting the Bay twice every lunar day would be a semi-daily deluge, immersing the whole country, out of which the peaks of the great mountains of the Pennine range must at the time of high water, have stood forth like islands. The high-water line of such a tide would be within 1,000 feet of the summits of Bowfell and Saddleback, and within 50 feet of the highest part of Black Combe; for it would be to that mountain, as 1,870 is to 1,919. At the time of low water, the floor of the Irish Sea would be laid dry. But supposing it to have equalled a mean only of 192 feet each way, its tide would have submerged the whole of the ground on which Lancaster now stands, the Castle Hill and the village of Aldcliffe being from 60 to 80 feet below water, the tide line reaching almost to the door of the present



LUNE AT LOW WATER.

*From a Photo.**By L. Waller, Esq.*

workhouse and into the villages of Scotforth and Dolphinlee, whilst the advance waters of the wave would have penetrated Lake Windermere and Coniston Water. Looking westward from such a tide line at high water, there would appear nothing but a sea, at best studded with a few islands, amongst them Black Combe, in those early ages a volcano, possibly vomiting forth fire and smoke. At low water, the bed of Lune Deep would be almost dry, whilst enormous sand banks would stretch miles upon miles away to the westward of the present entrance to Lune river, even to the drying of the whole of the bed of the Irish Sea between Walney and the Isle of Man.

That such is a picture of the early life of the wave, the rocks themselves remain as evidence; in the scored face of the carboniferous lime stone of Warton, Arncliffe, and Storth Crags, Grange, and Witherslack, on all the northern slopes of the bay and far up into the Lake

District, as also by the escrow written upon the rocks: in the washed and scoured façade of the tell-tale limestone, before time had hardened

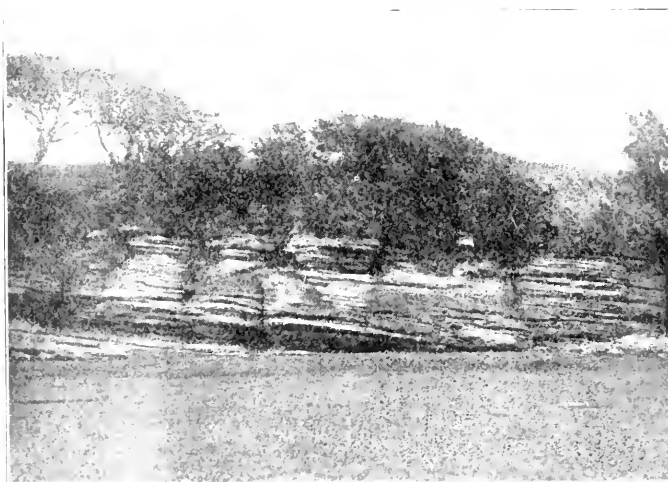


From a Photo.

By Rathbone, Carnforth.

ERRATIC BLOCKS, LIMESTONE, WARTON CRAG.

it to its present state of durability. Down the valley of the beautiful Lune, in the lime and millstone-grit boulders contained in the gravel in the



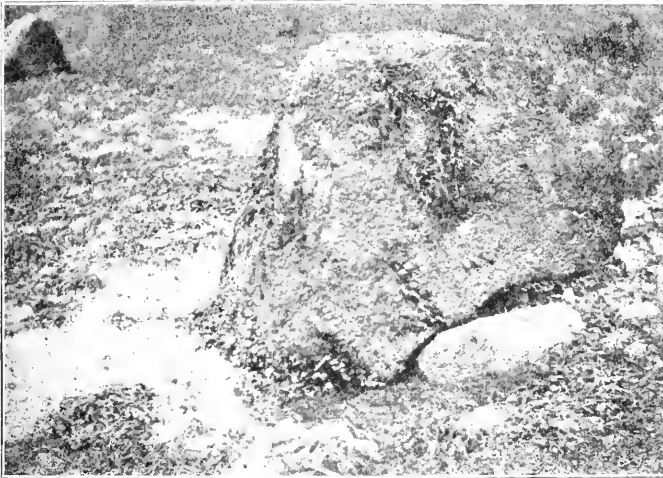
From a Photo.

By G. Wilson, Carnforth.

RAISED SEA BEACH—AT RUFFAM—HUMPHRAY HEAD, MORECAMBE BAY,
17 feet above the present highest High Water mark.

bed of its stream, and scattered widely over the shores of its estuary, the evidence, ever enduring, of the strength of this young wave is written—the evident history of the veritable giant.¹ On the shores of Walney Island, near Barrow-in-Furness, and on the Island itself, the writing of the wave is plainly visible; it is true it is only the writing of the wave to-day—yet, in that writing, you may plainly read the history of every great storm since the lighthouse on the island was built some 110 years ago. In ridge after ridge of washed-up gravels, with almost mathematical precision, has the wave of old ocean made its mark, a history in itself, which is only too fast and surely being obliterated by the hand of ruthless and destroying man.

If, for the sake of comparison, we picture to ourselves a calm day at the present time on the shores of the bay, and remember how



From a Photo.

B. L. Chieftain, Stokelyville

ERRATIC BOULDER.

One of many on the beach near Cockersnel Promontory, River Line.

insidiously the smooth glassy waters of the tide, its surface under the mid-day sun reflecting the sky and clouds, steals almost imperceptibly over the shore of the bay, how it rushes and roars as it forces its way past any obstruction placed in its path, we may form some idea of the irresistible force of a flood, ten times its present magnitude in height,

¹ The specific gravity of ice is about $\frac{1}{2}$ that of water, that is, that for every part of ice above water $\frac{1}{2}$ are below the surface, so that rock laden as these icebergs were they could only just be water borne.

ORDNANCE HEIGHTS.

Bowfell, 2011 feet	Saddle Back, 2,889 feet	Scawfell, 3,166 feet
Loughrigg, 1140 "	Black Combe, 1,919 "	Castle Hill, 137 "
Aldcliffe, 112 "	Workhouse, 240 "	Scotforth Heights, 200 "
Dolphinlee, 187 "	L. Windermere, 108 "	Conistone, W., 139 "

The 30 fathom line is from Holyhead to the Calf of Man, with a slight bend to the eastward, embracing the whole of the Isle of Man, continuing northward to the Mull of Galloway. Walney Island to the Isle of Man, 12 to 20 fathoms.

and at least 1,000 times its volume. No force, no barrier, save nature and the everlasting rocks, could for a moment resist such an onslaught as this wave must have made. What a picture for grandeur must a storm on such a sea have presented in comparison with the opening



sentences of this history. Be it remembered that the energy of such a wave was immense, when weighed by the standard of the wave of to-day, and that it contained within itself a crushing, grinding power, far exceeding anything of which we can form an adequate conception.⁵



From a Photo.

By Rothbar, Carnarvon.

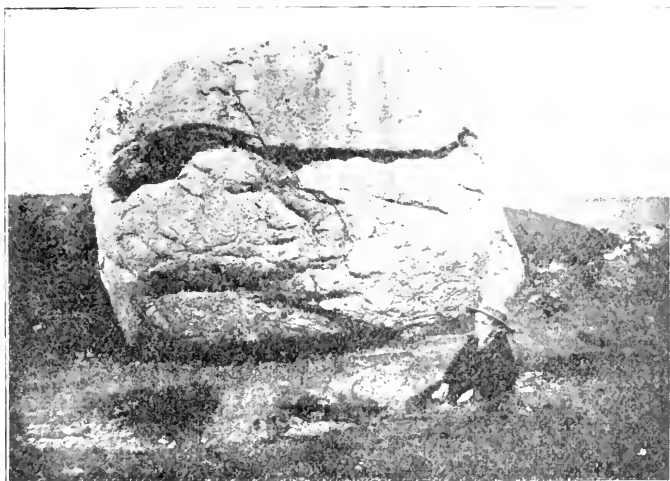
WARTON CRAG, FROM BELOW THE VILLAGE.

In the economy of the primitive earth the duty of the wave was the preparation of our planet for the abode of man. As age succeeded age, and years rolled on, passing away in the dim and distant past, the work

The energy of a wave is in proportion not to its height but to the square of half its height, multiplied by its length.

of the wave went steadily forward. Here laying bare a rock, there depositing a rich alluvial soil, hiding beneath the surface mineral treasures for future man. Wasting, yet building, and all the time writing a record of its work, that the geologist of to-day is only beginning to interpret correctly. As the moon receded from the earth, the energy of the wave slackened, the erstwhile tidal estuary became sea, and the former tide-washed shore dry land, till we find it to-day diminished in its volume and activity, but still slowly performing the same duties as before.

To digress for a moment—Many will no doubt remember the upper portion of Morecambe Bay before the Furness Railway was made and the bridge across the estuary constructed. By Cark and Cartmel, Grange, Witherslack, and Sandside one vast expanse of sand stretched far and wide. Now all is changed, rich pastures and waving corn

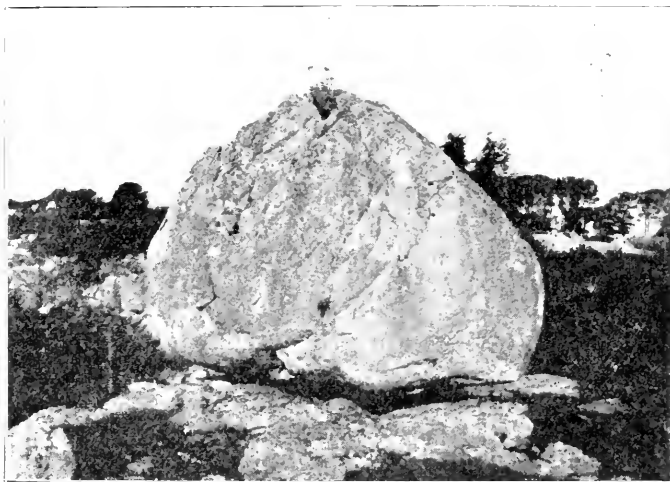
*From a Photo.**B. Kethlam, Carnforth.*

GREAT BOULDER, CHALLON HALL, WATERSLACK,
Near Haws water, Westmorland.

replace the sand, fashioned by the hand of man 'tis true, but in doing so, in reclaiming this land from the misnamed "wasting sea," man only forestalled the sea and moon in their work. Viewed in the light of fashioners and reclaimers, the wave and the moon have been the greatest architects of earth's surface—the wave by its scouring and levelling forces, the moon by her retrogression in reducing the tidal energy. Together they have been the greatest reclaimers of all.

The dry earth is the natural heritage of man, which the wave and the moon have for countless ages been preparing for his use, and he who assists in the operation of forming one rood of permanent dry land does more of the Creator's work than he who excavates the grandest waterway of modern days, the exigencies of the situation and the requirements of the times notwithstanding.

Not only did the wave prepare the ground by alluvial soil deposited on suitable slopes and in the valleys of the hills and mountains that



From a Photo.

By Rathlone, Carnforth.

THE GREAT BREEDER, YEALAND.

erstwhile formed the boundary and channels of its daily course, but it acted as a fertiliser also: it provided the seed. See the sweet coarse



From a Photo.

By Rathlone, Carnforth.

LIMESTONE ESCARPMENT, WARTON CRAG.

grass of the tidal estuary of to-day. The quick action of such a volume of water, the great rapidity of its currents, transported the seed of larger plants from place to place in little time, so that the action of the sea water did not hurt the delicate plant.⁶ The primeval tree, in the first instance possibly a species of fern, but later the oak, the chestnut, the pine, are all provided with a seed covering, an air-tight and buoyant jacket, that at once serves as a protection and a transporting vessel for its fruitful freight. Something of the nature of our wave may be gathered from the plants also. In intertropical climates, where the

*From a Photo.**By Rathbone, Oct. 1879.*

THE SENTINEL.

Looked at, and isolated in its grandeur, it might be a Monolith, a silent Sentinel marking a former boundary of the now departed wave. Block and Pedestal, executed by nature, as a lesson to man in future ages, to remind him of a shore of old that now knows no more sea.

currents of the ocean are slow and the wave action at its smallest, the seeds of the indigenous plants are particularly calculated to sustain themselves in a fruitful condition during long journeys by the sea wave. The cocoanut, the gourd, the pomegranate are all buoyant seeds with a hard dry covering, and the one of them all that has made the

⁶ The primeval tree was most probably a species of fern or some other plant of a very rapid and large growth.

longest journeys, producing the most useful tree, flourishing alike on good soil and on the sandy beach of the coral islet, is the cocoanut; it is provided with the most impervious and buoyant covering. The seed of the plants of the temperate and frigid zones will, on a closer scrutiny, bear the same comparison, and those that have extended furthest north and south will be found the best adapted for the purpose. Can all this be the accident of circumstance, or is it not the work of the wave guided by the hand of its Creator? To-day our ships floating on its surface do for us what it did for the land we inhabit in the past, when it carried from shore to shore the fruitful seed in its buoyant husk. In a ripe maturity the wave may be said at the present time to watch the result of its labours, for, with few exceptions, and they are all in the temperate zones, the rise and fall of tide is not sufficient to leave much margin for further reclamation.

The great waves of the ocean of the present day are four—two direct and two derivative: the two direct waves travel westward in the



Great Southern Sea, and as they pass the South African and American promontories propel northward up the basins of the Atlantic and Pacific Oceans, their two derivatives. These two derivatives, on reaching the northern hemisphere, are again divided, one portion going to the north westward along the line of its propulsion, the other, by its recurvity, proceeding to the north eastward in a direction almost opposite to the line of its genesis. The two direct waves in the Southern Sea and the four branches in the northern hemisphere, on approaching their respective coast lines, are greatly augmented in height, and as they impinge upon the shore raise six distinct high waves.⁷ These, in the order of their greatness, are the wave of the Bay of Fundy, Nova Scotia, said to reach a height equal to 120 feet. Next, the wave visiting our own shores and the coast of Norway, varying from 50 feet in the Bristol Channel, 27 feet 6 inches in Morecambe Bay, to 20 feet in the White Sea at Mezen. Third, the Great China wave, of from 50 to 30 feet, at Hankau and on the coast of Corea. Fourth, the wave on the

⁷ Height of tide here given is taken from Admiralty tide tables, and to the spring range—that is, from low to high water of an ordinary spring tide.

eastern side of the Pacific at Portland Inlet, N.W. America, 27 feet in height; and the two southern waves that reach a height of 38 feet on the N.W. Coast of Australia, and 45 to 50 feet in the Strait of Magalhães, at Cape Virgins, the Cape of three thousand Virgins.* The wave passing the South African promontory does not exceed some 6 feet in height. It must not be inferred, however, from the foregoing that there are no other localities in which the wave reaches a considerable altitude, for the wave in the Calcutta river at spring tides equals 17 feet, and that in the Gulf of Martaban 21 feet, whilst the wave in the Eastern Archipelago, in places, is from 15 to 17 feet in height. This high, subtropical wave is not confined to the eastern hemisphere, the tides in the Atlantic on the coast of Central America are small, averaging some 10 feet, and on the Pacific side about 13 feet, but the tide of Panama Bay ranges 22 feet, and that of the Colorado River 30 feet.



From a Photo.

THE MUMBLES HEAD, GLAMORGANSHIRE, SOUTH WALES.

Of the progress of the free wave, as it travels in deep water, various estimates of the velocity are given, as from 800 to 1,000 miles per hour. The derived wave does not in any part of its journey attain such a rate. Its mean rate from 64° south to 70° north equals about 335 miles per hour. The wave making the high water of Morecambe Bay, taking six hours to travel from the entrance of the channel, a distance of about 240 geographical miles, shows that in shallow water the rate of its progress is much diminished.⁸

⁸ Cape Virgins was discovered by Fernando de Magalhães, on St. Ursula's day, 21st October, 1519, and so named on account of the feast, De las Virgenes.

⁹ A wave 10,000 feet broad in water 1,000 feet deep travels 168·8 feet per second, and one of 1,000,000 feet in water 1,000,000 feet deep, 1688 feet per second. As the depth proceeds by arithmetical progression the motion diminishes by geometrical progression. At a depth equal to the breadth of the wave, the motion will equal 1/534 part of the surface. When the breadth of the wave is not greater than the depth of water, the velocity depends on its breadth and is proportional to the $\sqrt{\text{breadth}}$.

The honour of being the first to measure the height and velocity of storm waves which deserve mention, though not strictly under review in the subject which we are treating, remains with Dr. William Scoresby, a native of Whitby, in Yorkshire, and in his early life a seaman and a famous Arctic navigator. He has the credit, along with his father, of having sailed so far north as the 81st parallel of latitude in the year 1806. When 34 years old he retired from the sea, and took Holy Orders, and was made a D.D. in 1834. He was for some time Vicar of Bradford, but in 1847 resigned his living on account of ill-health. It was whilst endeavouring to recruit his health that he undertook the measurements referred to, whilst on a voyage from Halifax, N.S. to Liverpool in the R.M.S. "Arabia," of the Cunard line. He determined the extreme heights of North Atlantic storm waves as from 44 to 48 feet, with an average of 30 feet for ordinary gales, and a length of from 500 to 600 feet, exhausting themselves in from 12 to 20 seconds.* Some years subsequently the writer took an independent set of observations for the same purpose, with very similar results, on board the R.M.S. "Scotia," of the same line: he also observed the waves



R.M.S. "SCOTIA."

off Mizen Head, S.W. coast of Ireland, Fastnet Rock and Lighthouse in the distance.

NOTE.—The Calf-rock Lighthouse, which was destroyed by the sea in 1881, is situated N.W. 21 miles from this position, and the respective heights of the two lighthouses are, Fastnet 148 feet, Calf-rock 144 feet.

breaking over the lantern of the lighthouse on the Calf Rock off the south-west coast of Ireland, 144 feet above sea level. This lighthouse, completed in 1866, was, in November, 1881, completely destroyed by the sea during a gale of wind, the lighthouse keepers narrowly escaping with their lives.

The wave of the tide is a wave of the first order, and the forces that produce it act uniformly, not only horizontally, but also from the

* The Hydrographic Bureau of Washington published in 1887 the following results of a series of observations carried out in order to determine the length, depth, and duration of ocean waves. The longest wave hitherto observed is said to have had a length of half a mile, and to have spent itself in 23 seconds. During storms in the North Atlantic, waves sometimes extended to a length of 500 and 600 feet, and last from 10 to 11 seconds. The most careful measurements of the heights of waves give from 44 to 48 feet as an extreme limit; the average height of great waves is about 30 feet. These measurements confirm those of Dr. Wm. Scoresby, taken now some years ago on board the Royal Mail Steamer "Arabia," of the Cunard Line, during a passage from Halifax, N.S., to Liverpool, and are very similar to an independent set taken some years subsequently on board the R.M.S. "Scotia," of the same line. They are the measurements of the ordinary marine wave, and do not relate to tidal-waves, earthquake actions, volcanic actions, or any other exceptional agencies.

surface down to the lower portions of the deep ocean, even so low as the 3,000 fathom line, the abysmal sea of Dr. Murray, where the temperature is near the freezing point, and the annual range does not exceed 7° Fahr., where there is neither sunlight nor plant life, but where there is still an abundance of animal life and the forms in all the various oceans similar.¹⁰

Of the height of the great waves of the ocean, as they travel in mid sea, from the South Pacific and Indian Oceans up the basins of the Pacific, Indian, and Atlantic Oceans, we can form only conjectures, or, at best, estimate the height, from observations taken at isolated and distant positions on the line of progression. Tristan d'Achuna, St. Helena, Ascension Island, and the Islands of the Cape Verd and Azores, are positions from which such approximations are drawn; they are very far apart, and not exactly in the centre track of the wave, still, they serve as a guide to an estimate, and give in figures about 3 to 6 feet as the spring range.



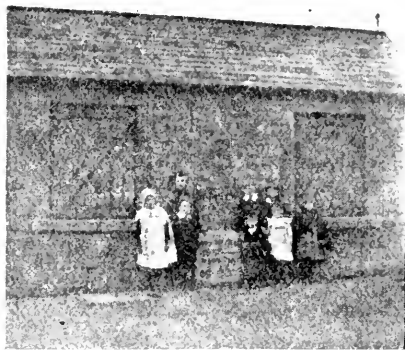
PIER HALL HOTEL.

We have said previously that the laws governing the tide are inflexible, let us here review briefly these laws and see how much they fulfil the power attributed to them. The most favourable position of the tide-producing elements, sun and moon, in their relation to the earth and to each other, is in the vernal equinox, the moon being equatorially situated, and in her nearest position to the earth. Such a position would produce in our neighbourhood a tide that would flow 20 feet above the mean level of the sea, or the Ordnance level as it is generally termed. Such a tide would just level the wall of Glasson Dock, a place you are all more or less familiar with. It would also be level with St. George's Quay, Lancaster.

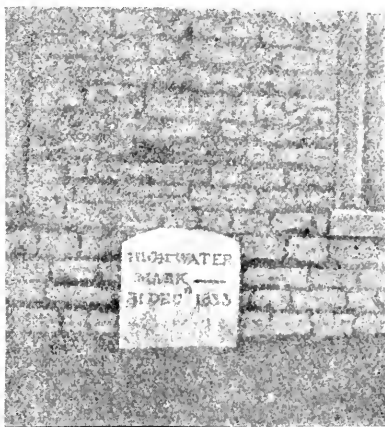
This favourable position of the tide-producing power is of very rare occurrence; in fact, cannot occur in its entirety once in a hundred years, if at all; it can only be approached. A little consideration will show how different things would be if, say, about 2 feet could be added

¹⁰ Dr. Murray, of Challenger Expedition.

to the height of the tides at the Equinoxal Springs. The highest tide of which we have any known record in this neighbourhood was the tide of the 31st December, 1833. Marked on the corner stone of the Pier Hall Hotel, Glasson Dock, and on a stone slab erected on the side of a barn, now used as a Mission Room,



near the shore at Braide's, Cockerham Moss, it is 21 feet 8 inches above datum, and with it the whole country in these localities was flooded. Yet this tide, storm pressed as it was, and deluging the whole country as it did, was under 2 feet above the highest prediction value of the tides of to-day. What, then, would be the result if 6 feet were added to the



THE HIGH WATER MARK ON COCKERHAM MOSS.

wave? And may we not reflect and, wondering, think how near man follows unto the edge, yea to the very margin, the receding wave? And what is illustrated in the places above mentioned is true of innumerable places in this our country, and all over the world; a proof indeed of how inflexible the tidal laws must be.

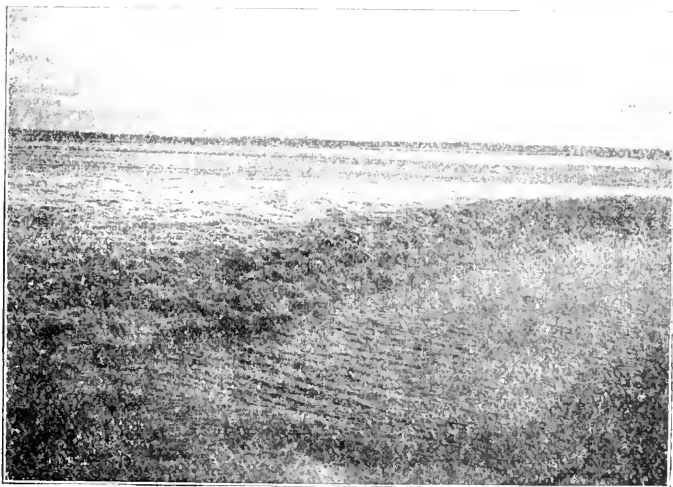
Here it may be interesting to glance (momentarily at some remarkable features that accompany the phenomena of the wave. First, the



From a Photo.

MISSION ROOM.

By A. Wharf, Esq.



From a Photo.

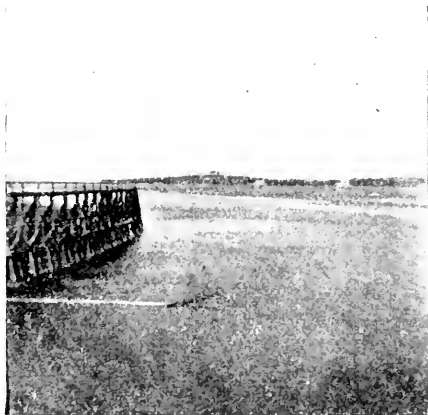
By Northrup, Moncton, N.B.

THE BORE, BAY OF FUNDY.

Height 5 feet 4 inches.

Bore, locally known as the tide head. This wave seems to have its cause in the undue friction generated by a heavy tide forcing its way

up a narrow channel, or over extended shallows. The wave of the tide, reaching the outer limit of the channel and meeting either of the obstructions named, is held back, or dammed up, into an abrupt steep wall. This wall, as the tide rises, loses its balance, curls over, and, breaking into surf with a long flat back, forces its way up the channel, or over the sand bank in its path. When the sand banks are extended across the channel, the wave is one continuous breast or steep wall of surf, advancing in a curve with great rapidity. In the confined channel the surf is on the margin, while the wave in the centre presents a smooth advancing billow with a sweeping back curve, the surface of which distorts reflection. In the Calcutta river, when the bore is prevalent, during the south-west monsoon, at the time of spring tides, the practice is for all small craft on the approach of the bore to betake themselves to the middle of the river, where, keeping head to the stream of the tide, the advancing wave passes harmlessly by. A stranger to Calcutta river is a little astonished to see all the dingies and small



THE BORE AS IT PASSES THE ENTRANCE TO GLASSIN DOCK.

craft suddenly, without any apparent warning, start for mid stream, the boatmen shouting and tugging at the oar, all seeming wild confusion. If he chance to be a passenger in one of the boats he is soon made aware of the presence of the extraordinary visitor, by the tossing of the boat, the smooth sweep of the rapid current past her side, the general commotion amongst the shipping, and the redoubled shouting of the boatmen, who, immediately the wave has passed, betake themselves to the shore again, as fast as they previously left it. Places noted for the size of the bore are Chignecto and Mines Bay, in the Bay of Fundy, the rivers Severn, Seine, Amazon, Hoogly, and the Solway and Morecambe Bay, all places known to be subject to a great rise of the tide wave.¹¹

¹¹ The tides of the River Amazon have been observed as high up the river as 200 leagues from its mouth, that is at Pauxis, and it is worthy of remark that at any hour when it is high water at Pauxis it is also high water at several points, amounting to a score, between that place and the sea, with intermediate corresponding low water between them. On a small scale this is observed in the Rivers Dee and Forth, and nearer home in the Lune. A declivity in the surface of the water is found at the time of high water, and during the flood and ebb, in the River Lune, near Heaton Point. This, most probably, were the river longer, would divide the wave to low water near that place.



From a Photo.

By Crawford, Moncton, N.B.

THE BORE—SPRING TIDE IN THE BAY OF FUNDY.

Height 7 feet 6 inches.



From a Photo.

By A. Schlusser, Ph.D., &c.

THE BORE, MORECAMBE BAY, ARNSIDE, WEST-MORLAND.

Holm island in the distance.

Rollers are another phenomenon, the origia of which cannot be satisfactorily explained. They come with little notice, and do not last long. From October to April, on all the small islands of the South Atlantic, and some parts of the North Atlantic, they prevail, and in many places in the Pacific and Indian Oceans, at other times of the year they occur.¹² Not unfrequently they break in from six to seven fathoms of water, and as far as three miles from shore. "All is tranquil in the distance; the sea breeze scarcely ripples the surface of the water, when a high swelling wave is suddenly observed rolling towards the island. At first it appears to move slowly forward, till at length it breaks on the outer reef. The swell then increases, wave urges on wave, until it reaches the beach, where it bursts with tremendous fury. The rollers now set in, and augment in violence, until they attain a terrific and awful grandeur,



From an Original Pencil Sketch.

By M.G.

THE ROLLER.

Island of Ascension, South Atlantic Ocean.

affording a magnificent sight to the spectator, and one which will be witnessed with mingled emotions of terror and delight. A towering sea rolls forward on the island like a vast ridge of waters, threatening, as it were, to envelop it; pile on pile succeeds with resistless force, until, meeting with the rushing offset from the shore beneath, they rise like a wall, and are dashed with impetuous fury on the long line of the coast, producing a stunning noise. The beach is now mantled over with foam, the mighty waters sweep over the plain, and the very houses of the town are shaken by the fury of the waves." Such is a description of a scene in which the rollers play a prominent part in the Island of

¹² At St. Helena and Ascension these rollers take place simultaneously and are on occasions very destructive. H.M.S. "Julia" was wrecked at Tristan d'Achuna, in a few minutes, in one, during a calm.

Ascension, taken from the voyage of the *Chanticleer*; true alike of all the places at which this strange phenomenon of the wave occurs, and possibly a description of the grandest wave the ocean of to-day produces.

Earthquake waves, or waves produced by volcanic action, are frequently of great height, velocity, and volume.¹³ They usually occur a considerable time after the earthquake shock, and roll upon the land, destroying all before them. Larger than the roller just described, they are infinitely more to be dreaded in those countries liable to their visitation. The great wave met with in mid Atlantic, by the *Cunard* and other steamers on the 26th July, 1887, and reported by them as a tidal wave, was most probably of this nature.¹⁴ In the earthquake of 1692, in Jamaica, a heavy rolling sea followed the shock. At Port Royal the "*Swan*" (frigate) laying close to the wharf (careening)—that is, hove on her side for repairs, was borne over the tops of the houses by the wave, and some hundreds of persons escaped by clinging to her. In the earthquake of 1755 at Lisbon, the wave in the Tagus rose to a height of 40 feet, leaving the bar of the river dry as it rolled inwards. It was followed by others of less and less importance, until the sea recovered its equilibrium again. This wave was felt, under modified circumstances, on the shores of Great Britain and Ireland—rising 8 to 10 feet on the coast of Cornwall. It was experienced at sea, 120 miles west of St. Vincent, shaking the vessels so violently that the men were thrown as high as a foot and a half from the deck.

A further wave of the sea, and one that frequently obtains gigantic proportions, is the storm wave, or the undulation of the water of the sea that follows under and around the path of hurricanes and cyclones. Formed under the vortices of the storms, the waves on reaching shallow waters are piled up wave upon wave until they far exceed the height of the spring tides, and travelling onward with the storm they burst over low-lying lands and the banks of rivers, flooding the countries adjacent to the sea and in their track, destroying and desolating all before them. In the great East Indian cyclone of October 5th, 1864, the storm wave that accompanied it, in the Bay of Bengal and over the delta of the Ganges, was altogether unprecedented.

At the entrance of the River Hoogly, a wave exceeded the height of the highest spring tides by 20 feet. At Cowcolly, which is at the entrance of the river, it was $16\frac{1}{2}$ feet above the highest spring tide, or 26 feet 9 inches above mean sea level. It inundated the whole of the country on both sides of the river, and submerged an area equal to 1,500 square miles. At Calcutta the wave was an hour in advance of the tide, was in height 5 feet above the high water of the day, and a great part of the low-lying portions of the town were flooded. It lifted the ships at their moorings, breaking the hawsers and chains, and taking

¹³ The eruption of the Krakatoa volcano and 25 others on the Island of Java gave the first sign on the evening of 25th August, 1883, and the same night, a few hours later, all were in active eruption. The wave of the great eruption in Java, when the mountain of Krakatoa in the Sunda strait was destroyed, was felt in Colombo Harbour, on the evening of the 27th August, at 5-30. The distance from Krakatoa to Colombo is 1,720 miles, or a progressive rate of 28 miles per hour for the wave. This wave was also felt and recorded on the automatic tide recorders of Devonport, England, at 10h. 45m. on the 28th August, and at Cherbourg, France, at 9h. 20m. on the same day, the time from Krakatoa being 31h. 47m. and 30h. 42m., and the rate of progression 347 and 361 miles per hour respectively.

¹⁴ "*Umbria*" of the *Cunard* line, on the 26th July, 1887, in the evening, 1000 miles west of Queenstown.

all in one destroyed mass before it, depositing the wreck on the shoals of the river bank above the town. This wave took $5\frac{1}{4}$ hours to traverse the distance from Cowcolly to Calcutta, $82\frac{2}{3}$ miles, equal to a rate of $15\frac{1}{2}$ miles per hour, whilst the crest of the tide wave occupies $3\frac{1}{2}$ hours in traversing the same distance. It was felt as a wave as high up as Mehurpore, on the Matabangha river, 80 miles north of Calcutta.¹⁵

In the recent cyclone in the Gulf of Mexico, which occurred on the evening of the 8th September, 1900, and prevailed from 5 p.m. until after midnight in its greatest intensity at Galveston, Texas, U.S., a storm wave of surprising and awful magnificence broke over the island on which Galveston stood, overwhelming the whole island and entirely destroying the city. The water extended across the island 4 to 5 feet deep, in the Rotunda of the Tremont Hotel it was 6 feet deep; 3,000 lives were sacrificed, and between 4,000 and 5,000 houses destroyed, most of the small vessels in the harbour were wrecked, and the whole island during the height of the storm was entirely submerged.

The theory of the wave now so well defined may be termed almost a modern scientific fact. The researches of such explorers into the hidden secrets of nature as Chladni, Melde, Tyndall, and Thompson, have determined this truth, that for the transmission of energy, be it motion, light, heat, sound, or any of the operations in the economy of nature, the wave, or undulatory theory, is the only true and acceptable means by which many of the wonderful effects and results of natural forces can be accounted for.

'Tis a grand conception the wave theory, but the fact must not be lost sight of that it partakes more of the nature of an undulation than the wave of the sea, as the vibrations are distributed, obstacles excepted, in all directions in equal proportions, nevertheless, it is worthy of the great minds that formulated it, for it is the master stroke of the great Creator: Hogarth's line of beauty, the ogree of the Architect. We find it in everything in nature, animate and inanimate, in all parts of the human form, indeed in every living, breathing creature, in the mountain slope, in the hill and valley, in the tree, the plant, the outline of every leaf and grass, in bud and seed; look where we will this master stroke is omnipresent. 'Tis the graceful motion of the snake, the writhing of the worm, the swoop of the bird: 'tis found in all things not fashioned by the hand of man. His only is the straight stroke, the impossible, square and upright. The wave is the great archetype of creation.

The crossings of the up and down motion of the wave are termed nodes or nodal lines: they are almost, not quite, stationary, for were they entirely incapable of any undulatory motion, the action of the wave would cease, the power of transmitting its energy being destroyed by any obstruction to the free movement of the particles. The beautiful experiment of the vibrating string fully illustrates the waves and the nodes also.¹⁶ What is true in the vibrations of the string and the transmission of sound, is true in the theory of the tidal wave. Several

¹⁵ There were actually or constructively wrecked at this time by the wave 31 large ships' representing a gross tonnage of 27,653 reg. tons, and the loss of life equalled 48,655 souls, distributed over the 1500 square miles inundated, over more than half of which area the water reached 6 feet and upwards.

¹⁶ Chladni gives the honour of the discovery of the nodes in a vibrating string not to Sauveur, 1701, but to Noble and Pigott, in Oxford, 1676, saying that Sauveur declined the honours when he found that others had made the observation before him.—*M. Melde, Professor of Machinery.*

well marked cases of the phenomenon occur on our coasts, in the Irish and North Seas, and the English Channel; they are practically known as tide and half tide. Starting at low water, the wave commences to rise with a lateral current running in the direction of the main wave; after flowing onwards and rising for some three hours, the wave falls again, the current continuing in the same direction; this goes on for three hours more, or until low water is reached. The current then changes, and the wave rises again for three hours, to fall in the last three hours with a continued current in the direction of the change. Thus it will be seen that the wave reaches a certain height, generally small, twice in 12 hours, and has in the same interval of time two low waters also. The high and low waters are not exactly of equal height as regards each other, neither are they confined to the stated times given; but an outline of the action of the water in passing such nodal lines is correctly conveyed by the explanation.¹⁷ These nodal lines are a necessity in the regular motion of the water when it impinges on the coast line; without them the return action of the undulation would be wanting, and if the waves continued to follow each other an inundation would be the inevitable result. Further they must in some places occur in the deep sea in order that the true motion or circulation of the wave may be indefinitely preserved; for, although the progressive motion of the great north wave is supposed to continue on up the Arctic Sea, and forward into the Behring's Straits, it is hard to see how the circulation of the wave can be entirely sustained through such narrow openings without such a provision.¹⁸

The area of the water surface of the globe may be taken at 127,000,000 square miles, or four times that of the land, and its depth from a few feet in the Zuyder Zee to five miles in some parts of the Atlantic and Pacific Oceans. The volume of this water may be ideally obtained by a supposition. If the solid body of the earth were reduced to a uniform level, the waters of the combined seas would suffice to cover it to a depth of about two miles. It was on this supposition that Sir George Airy grounded his contention, that low water should follow under the moon; and in a great measure this theory does not disagree with the Newtonian theory of the tide wave. The earth not being entirely surrounded by water, we may suppose it possible for the direct wave to be generated in such regions only as contain sufficient water for the purpose; then the waves visiting all other portions of such a globe as ours, would be derived waves, and in their relation to the parent wave, would be aged—that is, they would come to their high water some minutes, hours, or days after the meridional passage of the moon over the various places the wave would encounter in its onward journey. This interval between the meridional passage of the moon and the passage of the wave is called the age of the tide. Its mean:

¹⁷ The nodal lines in the Irish Sea and English Channel are Courtown, in Wexford, and between Cushendall and Portrush in the Irish Sea. Portland or Swanage, and between Harwich and Cromer and Scarborough in the North Sea.

¹⁸ The peculiar action of the tide at Petropaulovski, in North Russia, points to this conclusion. The tides are of unequal height and follow each other with great regularity, their difference being about 5 feet. The latitude of Petropaulovski is 53° north, and longitude 158° 45' east. The tides in Barrow Strait rise 8 and 4 feet; at Melville Island, 4 feet; and at Spitzbergen, 4 feet. In the Bay of Frobisher the tide is said to rise 45 feet, but this may be questioned, as in Cumberland Strait, a few miles to the northward, the spring range is only about 24 feet; the time of high water springs is 5-30.

rate of progress, something like 335 miles per hour, is not by any means uniform. It travels fastest in deep water, and is much retarded in the shallows. Starting in the Pacific, the wave occupies 12 hours in its journey to the South African promontory, it is then said to be 12 hours old; it takes 12 hours more to get into the neighbourhood of the Azores, and is then 24 hours old; six hours later, or in 30 hours, it has reached our Islands, and is at the entrance of the St. George's and English Channels; and some seven hours later, or when 37 hours old, it makes high water in Morecambe Bay; or about $37\frac{1}{2}$ hours in the whole journey. But as it takes 18 hours for the water of the tide to encircle the whole of our coasts, it follows that at many places in this latter portion of its journey, the hour of the high water and the moon's meridional passage must be very far apart, as, for instance, at Weston-super-Mare, in the Bristol Channel, where the highest tides take place on the days of full and changes, a few minutes before seven o'clock. Further, as it takes so long for the tide to flow round our shores, at some one place it must be at least 12 hours later than in Morecambe Bay itself. Presumably the most aged wave of which we know anything is the tide wave of the River Thames. The head of this wave is somewhere about Kingston-on-Thames, or Teddington, or as has been appropriately explained, Tide-end-Town, which is possibly very near the truth, not only for the river, but for the whole world.¹⁹

With the changes of climate that have taken place in past ages over the earth's surface, and the substitution of a glacial for a sub-tropical period over these islands, the wave must have had something to do and possibly played a most important part. The temperature of its waters would much affect the shores it visited. Other causes assigned for the change of climate, such as the change in inclination of the earth's axis, the precession of the equinoxes, and change in the eccentricity of the earth's orbit, would each affect the wave in height and temperature, even as the change in the angle of the moon's inclination in orbit to the plane of the earth's equator does now, through every lunar cycle of 19 years.²⁰

At what particular period of earth's history our imaginary wave existed is not important. Since its first formation, when the waters were "gathered together," the amplitude of the combined wave of the tide has slowly but surely decreased, and is still decreasing. At present the lunar and solar tides are as 5 to 2, or, to be more exact, 621 to 245; but, although the moon has so much more power over the tide wave, she is not permitted to control the action of the tide entirely. The sun exercises the mastery as to the time period of the wave, as we see in the priming and lagging of the tide. In this is a proof that in the course of ages the solar tide will obtain the mastery. The moon, by her excessive tidal action and retrograde motion, is slowly destroying her own power, whilst the combined waves, by their inertia and friction, are lengthening the period of the earth's rotation on her axis. The

¹⁹ The word aged as applied to the tide is correct, and is understood as the time that elapses from the birth of the tide under the moon in the Pacific Ocean until it arrives, or makes its high water, at the various stages in its journey west and northward.

²⁰ Observations properly discussed and the various recognised elements in the formation of the wave disintegrated in a systematic manner, seem to be the only true way to predict the tides at the various places of the globe with any degree of accuracy, all mathematical calculations having hitherto failed to provide a true solution in practice, though not so in theory. The great stumbling-block is the very complex nature of the derived wave.

action of the sun greatly contributes to the friction, by first accelerating the flow of the wave against the earth's rotatory motion, and then dragging it eastward against the retarding action of the moon.

Without a much nearer and greater disturbing force than the sun, the mighty engine of the wave could not have been evolved. Without the retrogressive motion the moon received at her birth, the present perfect condition of the earth would not have been arrived at, at least not in so short a time. So that in the youth and early maturity of our wave, we see the great benefactor of man; without the wave, much of earth's surface would not have been fitted for his abode, at least not for ages yet to come, for the agency of denudation, as at present exercised, seems all too slow for the purpose.²¹

The retrogressive motion of the moon will, however, destroy the equable balance of matter as at present presented to us, and the lunar wave will eventually cease to be. The solar tide, yet remaining, will for a time continue to perform a part in the economy of our planet, until it, too, will cease, and the earth no longer be the habitation of man.

We have now traced the wave from its cradle to its grave, and seen it, phoenix-like, resuscitating itself from its own particles; for the last pulsatory downward undulations of the old wave are but the prelude to the formation of the new. Silently and steadily the grand old ocean breathes forth a mighty power, whose life history is the history of our world, whose creation was when God called the waters together, whose future shall be as long as earth and water last. When the moon's influence on the tide wave shall have ceased to exist, when the day shall be as 60 of our present days, when the snow-line shall have descended to the sea, clothing in perpetual snow and ice, from the summit to the base, the everlasting mountains, when the sea itself shall have become ice, in the extended vista of innumerable ages yet to come, must we look for the grave of our wave. Until then, with a daily and semi-daily life, the restless wave will continue to perform its allotted task at the will of its Creator; and the countless ages of its existence shall be, to that Creator, "but as one day."

²¹ The maturity of the wave may be said to be that epoch in the earth's history when solar heat is so equally distributed that all portions of the surface of our planet enjoy just such a proportion of heat as will make it abundantly fruitful according to the prepared state, which period may be said to be from the advent of man, or about the time that the day began to lengthen at the expense of the month and onwards, until they shall have become so long that the excessive cold imparted to the earth's nadir side during the long night shall so far approach the solar heating power that vegetation will be seriously impaired through the coldness of the earth. The gradual cooling of the body of the earth itself will in a very great measure advance this time. Such may be said to be the period of the earth's maturity, and of the wave also.

A SHORT ACCOUNT OF MY ADVENTURES IN ASHANTI DURING THE REBELLION OF 1900.

By Mr. PERCY GRUNDY.

[Read to the members in the Library, by his father, Mr. S. Grundy, on
Tuesday, October 22nd, at 7-30 p.m.]

THE writer, who had previously been engaged in commercial life on the West Coast of Africa, took service in a gold-mining company, and proceeded up country with the company's first expedition. The concession of the company, situated 120 miles due north from the coast, and about 20 miles south-west of Kumasi, was reached in ten days. The work of clearing the bush, building stores, prospecting, and preparing for mining operations was pushed forward day by day, many adventures and experiences of varying character occurring from time to time.

Before very long rumours of trouble between the Governor of the Gold Coast and the Ashantis filled the air, and difficulty with the native employes began to be experienced. After a period of considerable anxiety and difficulty, during which a number of the men deserted, and a general condition of unrest prevailed, the writer proceeded to Kumasi to see the Governor. He says:—

On arriving at the last village before reaching Kumasi I found it in ruins. Our troops had destroyed the village that same morning. This scared my carriers, and I had much difficulty in getting them to go on. I did not feel particularly cheerful myself, as the state of affairs looked rather unhealthy in that locality, and we had still three or four miles to cover before reaching Kumasi. The troops stationed at Kumasi had been reinforced by a contingent from Accra, on the coast. After one of the fights they came back with about fifty wounded. At this time there were only, as far as I remember, about 150 troops altogether. On the morning of Wednesday, the 25th of April, Mr. David (the mining engineer) and I went to see the Governor. He advised us to let the business in hand stand over, as he did not like the look of things at all, but thought that the best thing we could do was to get back to our camp as quickly as possible in order to warn the others, and for all the members of our expedition to get back down to the coast immediately, for our lives. Somehow, I didn't feel much surprise at this; I seemed to have been half expecting something of the kind. We got back to our house, which was about a mile away from the fort. We were staying in the quarters of the Wesleyan Mission. Kumasi itself is made up of several villages covering a wide area, and is comparatively open ground, the surrounding country being dense forest or bush. We quickly packed up for our journey, and sent for our carriers. By the time we had snatched a hasty meal the carriers began to arrive. Mr. David had something like twenty loads, consisting of provisions, tools, etc., and after most of them had been despatched he said he would go

down the road to see that the carriers got started properly, leaving me to deliver the remaining loads as the carriers came up for them. A minute or two after I heard firing in the bush to the right, and two of the carriers came dashing up to the house in a fright, shouting "Ashanti-man come! come quick, massa!" then snatched up their loads and bolted off down the road; there were two loads remaining. I waited about ten minutes, the firing continuing, apparently about a quarter of a mile away. I snatched up my hammock rug, revolver, and one or two other things lying about, and started off down the road in the direction of the fort, which was hidden from our house by the surrounding bush. I passed through a Hausa village, which was absolutely deserted, with the exception of one old woman, who appeared to be crazy, and had evidently been left to her fate by the others. I shouted to her, and pointed down the road, but she took no notice, and simply went on rambling about something. I next came in sight of a Fanti village, and saw the last of the villagers making for the fort as fast as they could go, with all their household belongings packed up, carrying them on their heads. When I reached the fort I found the entire native population round its walls for protection, and our troops some 400 or 500 yards up the road, keeping up a hot and continuous fire into the bush. We had to give up all thoughts of getting back to our camp, for, although our road lay in the opposite direction to that on which the fighting was going on, we did not know but what an attack might be made from that direction also. We took our belongings into the fort, and were each given a rifle and fifty rounds of ammunition. The fighting went on all the afternoon, our troops driving the enemy back almost in a complete circle around the fort. I never saw a man who seemed to enjoy his work more than Captain Middlemist, the officer in command, seemed to do that afternoon. During a lull he came into the fort, and, expecting a further attack from a certain point, he got a Maxim gun into position in one of the corner bastions, and remarked, "Now, if the beggars will only come up here we'll have them on toast." The beggars, however, preferred to attack from somewhere else. At last, however, when it began to grow dark, the Ashantis drew off, and the troops were brought into the fort. There were a good many casualties on our side, and there is no doubt that the Ashantis lost heavily too, as we had Maxims and seven pounders blazing at them, besides the rifle fire of the soldiers. Well, there we were, all in the fort, and no prospect of getting out of it again in a hurry. The Europeans were as follows: The Governor (Sir Frederick M. Hodgson) and his wife, six missionaries (three ladies and three men), four officers, three doctors, and Mr. David and myself. The officers, doctors, Mr. David, and I ran a "common mess"—that is to say, we put our stores together and took our meals in company. The missionaries kept to themselves downstairs, and Sir Frederick and Lady Hodgson occupied half of the first floor. We were on the top floor. We made ourselves as comfortable as circumstances would allow, and tried to take things philosophically. The enemy had us entirely at their mercy with regard to our water supply, for, although we had a well in the fort yard, it was far from sufficient for the needs of all the occupants of the fort, and the water had to be brought a distance of about a quarter of a mile away. The water-carriers always had a strong escort of soldiers with

them. However, they were never attacked, and we were therefore never short of water. On the first night the Ashantis burnt several of the European houses and some of the villages. They also treated us to a concert, but whether the music was intended for a war song or a kind of dirge for their killed we did not know. It was, however, very weird and strange. They all sing in unison, and they sing well, too. However, I don't think any of us appreciated their efforts in that direction much. About three o'clock in the morning the fort was roused by our outpost firing. We all turned out, thinking it was an attack, but it proved to be a false alarm; one of the sentries imagined he saw the shadowy forms of the Ashantis creeping up, and fired, whereon his companions thought they saw something too, and they had a "pot" at the imaginary foe. However, we settled down again, and slept until reveille at five a.m. We expected the enemy to attack us again next day, but this they did not do. Instead, they calmly took possession of the town, and prepared to settle down. We soon found that Mr. Ashanti had brought Mrs. Ashanti and all the little Ashantis, and that they had evidently come to stay. There they were walking about in the most unconcerned way, in full view, about four hundred or five hundred yards up the road. They had occupied the officers' quarters and also those of the native troops. The officers amused themselves by "potting" at them from the windows of the fort, but they offered no retaliation, and we conjectured that the previous day's fighting had been enough for them for the time being. At night they burnt some more villages, and gave us another musical evening. Judging from the increased volume of sound, as compared with the previous night's entertainment, we supposed that they must have been largely reinforced during the day. I had the pleasure of seeing the house I had been living in two days previously in flames, and felt devoutly thankful I wasn't there at that moment. The next day (Saturday) passed quietly in much the same manner. We were expecting the Lagos Hausas (about 250 strong) to arrive about this time. The Governor had wired for more troops some time before, and had received news that the Lagos troops would start from the coast about April 19th. Sunday came, and looked as if it would pass uneventfully also. The officers had continued "sniping" at the enemy when any of them showed themselves, and at last it seemed to rouse them, for about two o'clock in the afternoon they opened fire from the houses they had occupied. We started shelling them with the seven pounders, and also brought the Maxims to bear on them. Their fire was quite ineffectual, as we were well out of their range. They then commenced creeping up through the long grass towards the fort, whereupon Captains Leggett and Marshall led out our troops and charged them. I shall never forget that charge. Our native soldiers, when they are thoroughly roused, fight like demons, but they wait rousing first. At any rate, our troops did on that occasion. The two officers rushed on, calling to the men to follow; the men, however, were in no hurry, whereon the officers turned back, and by sheer kicking and cuffing compelled the soldiers to charge. The enemy fell back on their shelter, and tried to drive our soldiers back. But by this time our men had fairly got into their stride, and were not to be beaten off. They surrounded the officers' quarters, where a number of Ashantis had taken up their position, and simply annihilated

them. When the fight was over there were found to be over thirty Ashanti corpses in this house alone. The fighting continued all afternoon, and ended in a thorough victory for our men. We had a number of casualties, but we buried one hundred and fifty Ashantis next day, and the probability is that they carried off as many more of their own dead themselves. We re-occupied the town, and were just getting over the excitement of the afternoon when, just as dusk was falling, the news went round that the Lagos Hausas were coming in, and in they came, very thankful to get in at all. They had had two days' continuous fighting, driving the enemy slowly before them, and had been fighting all that afternoon within gunshot of us, without our being aware of it, owing to the noise of our own engagement. They did not know we had been fighting, for the same reason, and, knowing that they were within gunshot of the fort, had almost persuaded themselves, as we did not come out to their assistance, that the fort had been taken, and that we had all been killed. They had suffered very severely, and about half of them had been wounded more or less badly. One of their officers (Captain Read) was wounded in five places, and his arm broken. They had four officers and a doctor. They brought in with them a man named Branch (a superintendent of telegraphs). On the day Kumasi was attacked he was repairing the telegraph line about twenty miles from Kumasi. He was travelling along the road in his hammock, when suddenly he was fired at from the bush. His little dog, which he had with him in the hammock, was killed, and his helmet was perforated in several places, but miraculously he was not hit himself. One or two of his carriers were hit, and the others bolted, leaving him on the road. The Ashantis caught him, tied him in his hammock, and, taking off his boots and socks, flogged his feet with whips made out of telegraph wire, until he must have fainted, when they left him. He was discovered by some natives of a friendly tribe, who took him to their own village, and looked after him. When the Lagos Hausas came up the road they found him there, and brought him in with them to Kumasi, more dead than alive. However, he soon pulled round, and became as well as most of us. About this time Captain Middlemist became ill with fever, and ten days later he died. After we had re-occupied the town we dug trenches and fortified the town generally, as well as we were able. Captain Armitage and Captain Marshall asked me to take charge of a gang of about one hundred labourers, and demolish the Hausa Cantonments, which were some distance up the road, as it was feared that the Ashantis might attempt to recapture them. This was a day's hard work, in the full glare of the sun, and all the time I had to keep waltzing round the lazy beggars, otherwise the work would never have been done. As a result, next day I started in for a bad fever, which laid me up for a fortnight. All this time our private stores of provisions were rapidly diminishing, and before long we had to fall back on army rations, consisting almost entirely of "bully" (corned) beef and biscuit. This biscuit is about as near a thing to a dog biscuit as I can imagine. Its chief difference is that there are no little specks of meat dotted all over it which you find in the dog biscuit. It is made from a coarse kind of meal, and is as hard as a brick. This biscuit and the "bully" was our staple food for the greater part of the two months we were boxed up in Kumasi.

We were living in luxury, however, as compared with the poor native inhabitants of the town, who had no stores to draw upon, for they dare not venture into the bush to procure "chop" (food). Most of those who, driven by starvation, did go into the bush in search of food never came back again.

It was an absolute impossibility, of course, to attempt to feed the whole town, as there must have been about 3,000 natives altogether. They lived on herbage principally, and anything they could lay their hands on. I remember one case where a lad had paid sixpence for a piece of leather, which had been the sole of a shoe, which would no doubt serve him for food for a day or so. At the end of the two months, when they were very much less in numbers, they were dying at the rate of thirty to forty a day. The Governor had brought a large number of carriers up with him, so that, with the carriers belonging to the troops, there were about eight hundred in all. Many of these died, but we provided them with a small allowance of food, which, with what they could manage to scratch together, just kept body and soul together. We had burial gangs at it continuously, digging graves and searching round for bodies, which, by the way, didn't need very much searching for, as they were all over. To go back, however, to the earlier part of the siege. One day the Governor called a meeting of all the Europeans, with the exception of the missionaries and Lady Hodgson, to decide whether we should stay on or attempt to break through the enemy's lines, and march down to the coast. He enlarged on the position, viewing it from all points. From the tone of his remarks I feel sure that he personally was in favour of trying to break out. However, he did not say definitely which plan he favoured, but put the question to us all, one after another, and all of us said "No; we must stay on until the relief force comes to our aid." That settled it, and things went on much as before. We kept lessening the amount of provisions to be issued daily, both for the troops, the carriers, and ourselves. It rather reminded me of the Irishman who tried to economise by each day giving his horse a little less fodder, until at last, when its daily allowance had come down to one straw, it unfortunately died. On May 15th a rumour went round that troops were coming to our relief from the north, and about three o'clock in the afternoon in they marched, commanded by Major Morris, D.S.O. I will leave it to the newspaper report to explain how they had come to our assistance. It was very soon decided that, even with this additional force, it would be folly to attempt to break through the enemy's lines in order to get down to the coast, as they completely surrounded us in overwhelming numbers, and had erected stockades on every road leading out of Kumasi. So the only effect this "relief" had, for the remainder of the siege at any rate, was to become an additional drain on our supply of provisions, which were rapidly disappearing. For the principal events which took place during the remainder of the siege I will refer you to the newspaper accounts, and endeavour to confine myself to things which are not mentioned therein. Time hung very heavily on our hands, and it was quite a pleasure to find some work to do of any sort. Dr. Tweedy had charge of the daily issuing of rations, and I assisted him. At one time, when he became ill with fever, I took the job over from him, and had charge of it by myself for about ten days.

I had to make a daily report to Major Morris, and receive his orders with regard to the following day's issue. Most of our time was spent in reading (we had a good supply of literature), and sleeping, and so on. Eating did not occupy much time, for a very obvious reason. We tried to vary our diet as far as possible. We had a moderate supply of flour, and used to make corned-beef pies, using Eno's Fruit Salts as a substitute for baking powder. At last it became apparent that we could only hold out for another week, as our provisions were almost done. For some time previous we had been informed by our spies that a large relief force was within a day's march of us, but could not get past the enemy's lines. At night we fired signal rockets and guns, but received no reply. During the last week we directed a vigorous rocket fire on the enemy's camps, which we were able to locate by the smoke from their fires rising above the trees. The rockets used in warfare are formidable things; they fairly tore their way through the bush, lopping off branches of trees in their flight, and I have no doubt some of them took effect, as they were intended to, judging by the yells which arose from the Ashanti camps. On several nights we had expected the enemy to attack; but one night I remember in particular. The Ashantis had given us their usual evening concert—it was the regular thing every night for them to sing their war songs, and we got quite used to it. However, on this particular night we were all under the impression that they had concluded their entertainment for the evening, when all at once a terrific drumming, and warhorn tootling, and yelling arose from all round, and evidently very close. This went on for a long time, during which we got fully prepared for the expected attack. However, none was delivered, which seemed a pity after making such a fuss. On the Queen's birthday a parade of the troops was held on the parade ground in front of the fort. I think most of us looked on with rather mixed feelings, for I'm sure most of us had pretty well given up all hope of ever coming out of the mess alive, though we didn't speak to each other in that strain. After the parade most of us paid the Governor a formal visit, as is the custom on that occasion. As time wore on, and no relief appeared, the word was at last passed round to prepare to march out. Hammocks were got ready, and everything else done that was necessary. We were held in ignorance of the date when we were to go until the day before, when we were told that a start would be made at four in the morning of June 23rd. Major Morris drew out a plan of the order of march, so that no delay should occur in starting. After an hour or two's sleep we got up, made our final preparations for departure, and assembled outside the fort. Captain Leggett and Captain Armitage, who commanded the advance guard, led out their men, and moved forward. Progress was very slow, as the column had to march in single file, and the "road," which was merely a bush path, was a wretched quagmire, it being the middle of the rainy season at the time. We were leaving a garrison of about 100 native troops and two white officers, and an army doctor. Captains Bishop and Ralph and Dr. Hay, the three we were leaving, wished us luck, and shook hands with us as we fell into our places in the column. Major Morris had decided that it was utterly impossible for us to get down by the main road, as the enemy were reported to have built at least seven stockades across the road, and if it were true that

a large relief force had been attempting for some time to get through to us, and had failed to do so up to then, it was extremely unlikely that we could get through to them from our side, as we were probably a much smaller force, and, owing to the effects of the protracted siege, absolutely unfit to tackle the enemy's main army, which probably numbered from 20,000 to 30,000. Our column consisted of about 600 native troops, several hundred carriers, Sir Frederick and Lady Hodgson, and about two dozen Europeans, including officers. Before the rear-guard had got fairly started we heard heavy firing ahead, and knew that our advance guard was already engaged. The column was delayed for some considerable time, and when at last we moved forward again, and came to the first village, we found a strong stockade at the entrance to the village, which the advance guard had stormed and taken. The inhabitants of the village had made a tough stand, as was evidenced by the number of bodies of both soldiers and Ashantis lying about. At each village and on many points of the road the Ashantis gave battle, but the column moved on slowly but surely. At noon a halt was called in a village from which the inhabitants had been driven. On resuming the march the rear-guard was sorely harassed by the enemy, who followed in large numbers. For three days the march was continued before we got out of the enemy's country, and under the most distressing conditions. The progress of the column was much impeded by the native inhabitants of Kumasi, who swarmed after us, simply mad with terror. Hundreds dropped by the way absolutely exhausted. After Kumasi was relieved a column was sent out from the town which followed the route our column had taken, and reported that the road was sprinkled right along with hundreds of headless skeletons. The Ashantis had followed us, and beheaded all those who had dropped by the way. On reaching Inkwanta, the capital of the King of Ekwanta's country, we found the Union Jack flying, and were hospitably received by the inhabitants. Major Morris decided to stay in the village, and allow the column to rest for a few days. However, the King of Ekwanta's spies brought in a report that the Ashantis intended to attack us at the Ofin River, so after three days' rest the column pushed forward again, in order to reach the river before the enemy. This we did, but found the river in flood, and had a terrible time in getting through its swamps, wading up to the armpits in water for hours. How the ladies in the hammocks were got over is a marvel, but the whole column succeeded in getting through somehow. After crossing the river all danger of further attack was passed, so the column was split up into sections in order that quicker progress might be made. Finally, after a march lasting 19 days, we arrived at Cape Coast Castle, more dead than alive, on July 11th. Captains Leggett and Marshall both died on the way down from wounds received in the first day's fighting. One of the missionaries also died on the way from fever. It is impossible to give any adequate idea of the horrors of that march in words. I could harrow your feelings with numerous incidents that took place, but it would be neither pleasant reading nor writing. Suffice it to say that the brave garrison we had left in Kumasi were at length relieved by Colonel Wilcock's column, just as they had decided to distribute their last day's provisions on the morrow and march out, which would undoubtedly have meant complete annihilation for such a small force.

I had the pleasure of seeing Captain Bishop, one of those two officers who were left in charge of the fort, once again before I left Cape Coast for home. In conclusion, I would like to pay my humble tribute to the noble and courageous manner in which our officers behaved throughout. One and all did their duty nobly and well, with a good heart and a cheerful spirit. May England always have men such as these to guard her interests.

HEAT WAVE—UNITED STATES.

REPORTS of the Meteorological Offices in America have appeared regarding the amount and extent of the atmospheric heat there and its results, but they have not yet it seems vouchsafed even a plausible explanation of the origin and maintenance of the phenomena of the heat wave. There may, however, here be hazarded a suggestion to satisfy the curiosity of the general inquirer that this abnormal air heat is probably local, and not cosmic, and that there need be no fear of it spreading far outside the states.

The heat is not reported extending over the sea, or the coasts, or on the great lakes, so that it is probably purely terrestrial, and dependent on the condition of the soil or country surface.

In the populated States the progress of colonisation has brought about the deforestation of the valleys and hills for the purposes of cultivation, tillage, and pasturage, roads, railways, and towns with log huts and firewood, and this clearance has extended out into the plains and prairies which also contribute a quatum by their fires. It is probably bringing slowly a condition of the earth's surface there, as appears in an exaggerated form in India, Persia, Australia, South Africa, etc., where little vegetation exists for sheltering the bare earth from the hot sun, or attracting moisture from the clouds. The consequence of this would be aridity of the air over the country, and no moisture in the air to take up the sun's heat and absorb it, and blanket the sun's direct rays by clouds. This state of matters in the climate tends to repeat itself, and to prolong itself till some atmospheric storm cyclone sweeps down from the tropic, or blizzard comes from the Polar regions to disturb the heat bank formed over the States.

According to late news from America, the grain crops and root crops have become parched and withered up in the Central States, and the rivers getting dried up and fouled, a condition of things approximating to the accounts of the droughts and famines experienced in India within the last year, and also previous ones. As the climate of the States seems gradually tending to this condition, it would apparently be appropriate that the manner of living might be approximated by the introduction of punkahs, taties, white clothing, and change of diet as to hours and quality during the hot season, as in India.

J. M. BLACK, F.R.M.S.

PROCEEDINGS OF THE SOCIETY.

OCTOBER 1ST TO DECEMBER 31ST, 1901.

The 583rd Meeting of the Society was held in the Coal Exchange, Manchester, on Tuesday, October 8th, 1901, at 7-30 p.m. In the chair, the Rev. S. A. STEINTHAL, F.R.G.S., Chairman of the Council.

Mr. ARTHUR GULSTON, superintendent engineer to Messrs. Armstrong, Whitworth, and Company, Newcastle-on-Tyne, addressed the Society on the steamship "Ermack," and illustrated his address with a large number of lantern slides made from photographs taken by him on the voyages of the "Ermack" in the Baltic and the Arctic.

Mr. HARRY NUTTALL moved a vote of thanks to Mr. Gulston for his admirable address. This motion was seconded by Mr. T. DREYDEL, and supported by Mr. D. R. CALVERT, and was carried.

Mr. GULSTON responded, and replied to questions.

After the meeting a number of members entertained Mr. Gulston to supper at the Victoria Hotel, Mr. Harry Nuttall in the chair. A very pleasant two hours was spent with the lecturer, who returned to Newcastle by the midnight train.

The 584th Meeting of the Society was held in the Library, on October 15th, 1901, at 7-30 p.m. In the chair, Mr. THOMAS DREYDEL, J.P.

The Minutes of the previous meeting were read and approved.

The election of the following members was announced: Mr. Thomas Hamilton, Mr. James Hall, J.P., and Mrs. E. Dentith.

The following presentations were announced:—

Presented by Mr. A. J. Kennedy, F.R.G.S.:—The following papers, published in America: *St. Paul Dispatch*, vol. xxxiv., No. 156; *Minneapolis Journal*, August 30th, 1901; *The Daily Pioneer Press*, vol. xlviii., No. 253.

Presented by United States National Museum: Report of the United States National Museum. (Part II., 1897. Containing a memorial of George Brown Goode, together with a selection of his papers on "Museums" and on "The History of Science in America." Illustrated.) Report of the United States National Museum, under the direction of the Smithsonian Institute, for the year ending June 30th, 1899.

Presented by the Smithsonian Institute: Reprints from the Smithsonian Report for 1898. (Nos. 1198, 1199, 1200, 1201, and 1202.) Reprints from the Report for 1899. (Nos. 1231, 1234, 1244, and 1245.)

Presented by the Royal Geographical Society: Map to illustrate a journey from Zeila to Lake Stefanie, North-East Africa. By James J. Harrison. 1899-1900.

Presented by Thomas Cook and Son: "Cook's Excursionist and Home and Foreign Tourist Advertiser." (Vol. li., Nos. 8 and 9. August and September, 1901.) "Cook's Ocean Sailing List, with Hints to Intending Travellers by Sea." (July, August, and September, 1901.) "Programme of Cook's Tourist Tickets for Travelling in Ireland. (1901.) "Cook's Tourist Handbook to Scotland: A Programme of Arrangements, Independent and Conducted Tours." (Season 1901.)

Presented by Manchester Ship Canal Company: "Official Sailing List for September." No. 24. (And a number for distribution.)

Presented by Department of Mines and Agriculture, Geological Survey Branch, Sydney: "Geology, No. 2." (Containing a paper on "The Iron Ore of New South Wales." With maps, plates, and sections. By J. B. Jaquet, A.R.S.M., F.G.S., Geological Surveyor.)

Presented by Minister of Mines, Wellington, New Zealand: "New Zealand." (By R. A. Loughnan. March, 1901. With map and illustration.)

Presented by the Director of Royal Botanic Gardens, Kew: "Bulletin of Miscellaneous Information." (Appendix IV. 1901.)

Presented by the Director: "Annuaire Statistique de la ville de Buénos Aires, X^{me} année, 1900."

Presented by University La Plata: "Rodolfo Hauthal's Excursions to La Sierra de la Ventana and the Sierras de Olavarria."

Presented by Mr. W. W. Midgley, F.R.Met.S., Chadwick Museum, Bolton: "Humidity in Cotton Spinning." (By Sir Benjamin Dobson, C.E., M.I.M.E. Revised and supplemented by W. W. Midgley, F.R.Met.S. John Heywood. 1901.)

The following charts were also presented by Mr. Midgley:—

Passages to Fort Tomgas. 1869.

I-Youk-Een Cove. 1869.

Lindenberg Harbor. 1869.

Narragansett Bay. 1873.

General chart of Delaware and Chesapeake Bays, and the Sea Coast from Cape May to Cape Henry. 1855.

Key West Harbor and its approaches. 1855.

Washington Sound and approaches, Washington Territory. 1866.

A. D. Bache.

Chiachi Islands, Alaska Peninsula. 1875.

Sketch of Anchorage, Chignik Bay, Alaska Peninsula. 1875.

Chart of Kyska Harbor, Great Kyska Island, Aleutian Islands. 1875.

Popoff Strait, and Humboldt Harbor, Alaska. 1872. Benjamin Peirce.

Sketch of Anchorage at Cape Etolin, Nunwak I., Bering Sea. 1875.

Sketch of the Shumagin Islands, Alaska. 1875.

Sketch of Port Moller, North Side, Alaska Peninsula, Bering Sea. 1875.

Chart of Iliulink Harbor, Unalashka. 1875.

Chart of the Pribiloff Islands, Bering Sea, Alaska. 1875.

Sketch of St. Mathew and adjoining Islands. 1874.

Chart of Captain's Bay and Vicinity, Unalashka Island, Alaska. 1875.

Sketch of Sannakh Islands and Reefs, Alaska, 1875; sketch of North-

West and Yukon Harbours, Shumagin Islands, Alaska, 1875;

sketch of Acherk Harbour, Sannakh Island, 1875; sketch of

Middleton Island, Alaska, 1875. (On one sheet.)

- Sketch of Anchorage, Bay of Islands, Adakh Island, Aleutians. 1875.
Sketch of Constantine Harbor, Amehitka Island, Aleutians. 1875.
Sketch of South-West Anchorage, Chirikoff Island, Alaska. 1875.
Kootsnoo Rapids. 1869.
Etoline Harbour, Wrangel Island. 1869.
Sketch of the Shumagin Islands, Alaska. 1872. Benjamin Peirce.
Sitka Harbor, Alaska. 1869. Benjamin Peirce.
St. Paul Harbor, Kadiak Island. 1869. Benjamin Peirce.
Columbia River. Sheet No. 1. 1875. Benjamin Peirce.
Potomac River (in four sheets). Sheet No. 2, from Piney Point to Lower Cedar Point. 1868.
Potomac River (in four sheets). Sheet No. 4, from Indian Head to Georgetown. 1875.
Pacific Coast from Point Pinos to Bodega Head, California. 1862.
North-West Coast of America. Sheet No. 1, Cape Flattery to Dixon Entrance. 1868. Benjamin Peirce.
No. X., Straits of Florida. 1868.
No. 94, Mississippi River from the Passes to Grand Prairie, Louisiana. 1874.
Entrance to Pensacola Bay, Florida. 1877.
Reconnaissance of the United States (middle sheet) from San Francisco to Umpqua River. 1854. A. D. Bache.
Columbia River. Sheet No. 2. 1875. Benjamin Peirce.
Alaska and adjoining Territory. 1869. Benjamin Peirce.
San Diego Bay, California. 1859.
Puget Sound, Washington Territory. 1867. Benjamin Peirce.
Entrance to San Francisco Bay, California. 1859.
Galveston Entrance, Texas. 1867. Benjamin Peirce.
North-West Coast of America. Sheet No. 2, Dixon Entrance to Cap St. Elias. 1865. Benjamin Peirce.
Charleston Harbour and its Approaches. 1870.
Bay and Harbour of New York. 1874.
Potomac River (in four sheets). Sheet No. 1, from Entrance to Piney Point. 1868.
Potomac River (in four sheets). Sheet No. 3, from Lower Cedar Point to Indian Head. 1862.
Sketch of Lituya Bay, Alaska. 1875.
Sketch of St. Paul Island, Pribiloff Islands, Bering Sea. 1865.
Sketch of Semidi Islands, Chirikoff Island, and Lighthouse Rocks, Alaska. 1875.
Port Mulgrave, Yakutat Bay, Alaska. 1875.
Sketch of the St. Elias Alpine Region, Alaska. 1875.
Sanborn Harbor, Nagai Island, Alaska. 1872. Benjamin Peirce.
Coal Harbor, Zachareffskaia Bay, Alaska. 1872. Benjamin Peirce.
Illionliouk and Captains Harbor, Unalaska Island. 1869. Benjamin Peirce.
No. 9, Boston Bay and Approaches. 1872.
Coast Chart No. 55, Coast of South Carolina and Georgia from Hunting Island to Ossabaw Island, including Port Royal Sound and Savannah River. 1873.
Savannah River and Wassaw Sound. 1867.

- Mount Desert Island, Maine. 1875.
 Entrance to Mobile Bay. 1851.
 Reconnaissance of the Western Coast of the United States (Northern sheet) from Umpquah River to the Boundary. 1855. A. D. Bache.
 Hudson River. Sheet No. 1, from New York to Ybaverstraw. 1865.
 Casco Bay. 1870. A. D. Bache and Benjamin Peirce.
 The Harbour of Annapolis. 1846.
 Gulf Coast of the United States, Key West to Rio Grande. 1863.
 Atlantic Coast of the United States (in four sheets). Sheet No. I., Cape Sable to Sandy Hook. 1864. A. D. Bache.
 Atlantic Coast of the United States (in four sheets). No. II., Nantucket to Cape Hatteras. 1863. A. D. Bache.
 Patapsco River and the Approaches. 1870.
 Reconnaissance of the Western Coast of the United States (lower sheet), San Francisco to San Diego. 1853. A. D. Bache.
 Hampton Roads and Elizabeth River, Virginia. 1864.
 Atlantic Coast of the United States (in four sheets). Mosquito Inlet to Key West. 1863. A. D. Bache.
 Sketch of St. George Island, Pribiloff Island, Bering Sea. 1875.
 Atlantic Coast of the United States (in four sheets). Sheet No. III., Cape Hatteras to Mosquito Inlet. 1863. A. D. Bache.
 North-West Coast of America. Sheet No. 3, Icy Bay to Seven Islands. 1868. Benjamin Peirce.
 Sketch of Simeonoff Harbor, Simeonoff Island, Shumagins, 1895; sketch of North-East Harbor, Shumagins Island, 1875; sketch of Eagle Harbor, Nagai Island, Shumagins, 1875; sketch of Falmouth Harbor, Nagai Island, Shumagins, 1875. (On one sheet).

Letters were read from Mr. A. J. Kennedy, F.R.G.S., Victoria, B.C., and others.

Hotel Metropole, Vancouver, B.C.,

September 26th, 1901.

MY DEAR SOWERBUTTS.—Since I left Manchester I have visited New York, Atlantic City, Philadelphia, Richmond, Washington, Baltimore, Buffalo, Niagara Falls, Toronto, Ottawa, Montreal, Quebec, Lake St. John, Chicoutimi, Albany, Hudson River, Pittsburg, Chicago, St. Paul, Minneapolis, Fargo, Yellowstone Park, Butte, Seattle, and here I am now at Vancouver. The Duke and Duchess of York are due here next Monday. I am to lunch with them and the Mayor and city aldermen, and then I am going on to Victoria, B.C., and thence to Portland and down to San Francisco, calling at the various places *en route*. The United States is a marvellous country; the more you see of it the more you are impressed with its importance. Its mineral wealth and resources are untold. I feel that it is destined to become the greatest country on the face of the earth. Every town is prosperous. Look at Chicago. Fifty years ago the site of that town was a mere swamp, and now it has a population of over two million souls, and is still growing rapidly. And look at the immensity of the various States; Texas, as you very well know, being larger than the whole of France. I was in the Yellowstone Park last week; I just got through before they closed up for the season. What a wonderful place that is. I saw at the Congressional House at Washington a large painting

of the Grand Cañon at Yellowstone, and remarked to the friend who was with me that I thought it must be overdone in colour, it was so brilliant. Having since seen the Grand Cañon, I can testify that it was not overdone; and so brilliant is the colouring of the place that I feel it would be almost impossible for an artist to overdo it in colour. The magnificence and opulence of colour are beyond description. No artist could correctly represent the picture either with the brush or pen. And then the springs and silent pools, with their peculiar funnel-like craters and walls so delicately coloured, and the beautiful transparency of the waters. One has to view the whole scene in order to correctly understand the wonders of the place—the mud geysers and the mountains of sulphur. I wished at the time that you had been there. It takes five and a half days to get through the park in the stage-coach, and no time is lost either, neither is it too hurried. I am glad it was included in my tour. I have had enough of the big American towns, and shall be glad to get out of the States. I want to get into California and the vicinity, and get over to Japan. I feel that that country will be intensely interesting. At Vancouver here all the housework is done by Chinese; there is very little female help to be had. The Japs are also here in large numbers. There are very few coloured people here. This place is only fifteen years old, and being populated originally by single men, miners who settled here, there are comparatively few people with families, and hence the shortness of the domestic servant element. The place has, however, made wonderful headway in the time and has all the marine and other conveniences that are necessary to build up a large city. The population here is 30,000. The Canadian Pacific Railway Co. own a fine fleet of steamers which run to Japan and China. The climate is something like that of England.

With greetings and kindest regards to yourself,

Most respectfully yours,

A. J. KENNEDY.

Communications from Mr. J. P. Thomson, F.R.G.S.A., Brisbane, were read. They were: "Mexico, 1897," by Lord Lamington; "Geographical Evolution of the Australian Continent," by Mr. Thomson; Report of Annual Meeting and account of bestowal of Medals of the Royal Geographical Society of Australia, Queensland Branch.

Mr. J. R. SMITH addressed the Society on "Naples and Vesuvius," illustrating his address with a set of fine slides.

Mr. GEORGE PEARSON moved a very hearty vote of thanks to Mr. Smith. Mr. S. MASSEY seconded, and the resolution was carried after some remarks from the Chairman on incidents of his residence in Naples.

Mr. SMITH responded.

The 585th Meeting of the Society was held in the Library, on Tuesday, October 22nd, 1901, at 7-30 p.m. In the chair, Mr. D. A. LITTLE.

The Minutes of the previous meeting were read and approved.

A letter from Mr. C. H. Bellamy was read with other correspondence.

A communication was read from M. J. Charles-Roux, president, and M. The Chevalier Pesce, secretary, of a new association now being formed under the title of "The International Marine Association," with a paper

containing the objects, methods, and purposes of the association, was presented.

The following presentations to the Society were announced:—

Presented by Messrs. Thomas Cook and Son: "Cook's Excursionist and Home and Foreign Tourist Advertiser." (Vol. xli., No. 10. October.)

Added to the Library: "The Story of the Potter," by C. F. Binns. "The Story of the Religions," by E. D. Price. "The Story of the Forest and Stream," by J. Rodway. "The Story of Photography," by A. T. Storey. "The Story of the Mind," by J. M. Baldwin. "The Story of the British Race," by John Munro. "The Story of King Alfred," by Sir W. Besant. "The Story of Fish Life," by W. P. Pyecraft. "The Story of Books," by C. B. Rawlings.

Presented by the Superintendent of the Section at the Glasgow Exhibition: "Illustrated Handbook of Western Australia" (prepared for the Glasgow Exhibition, 1901). "Handbook of the Western Australian Court, Mineral Section, Glasgow Exhibition, 1901."

Presented by Lieut. Ch. Lemaire, the following maps: Mission Scientifique du Ka-tanga, Itineraire, August, 1898, to March, 1900. Mission Scientifique du Ka-tanga, Itineraire, March, 1900, to July, 1900.

The election of the following members was announced: Mr. T. H. Davies-Colley, Mr. Angus Tullock, and Miss Philips.

Mr. S. GRUNDY read a paper contributed by his son, who is in West Africa, on his experiences in Ashanti and at Kumasi with Sir F. Hodgson, and escape therefrom.

The SECRETARY read a paper forwarded by Mr. John Ainsworth, C.M.G., H.M. Commissioner of Ukamba, British East Africa, on the "Trade and Commerce of Ukamba," illustrated with a number of samples of cloth, beads, wire, etc.

A very hearty vote of thanks was passed to Mr. Grundy and to Mr. John Ainsworth for their interesting and valuable communications.

The 586th Meeting of the Society was held in the Library, on Tuesday, October 29th, 1901, at 7-30 p.m. In the chair, Mr. HARRY NUTTALL.

The Minutes of the previous meeting were read and approved.

The Chairman called the attention of the members to forthcoming meetings of the Society.

Mr. W. W. Midgley, F.R.Met.S., addressed the members on "The Carboniferous Limestone," illustrating his address with special lantern slides and sections of rock prepared for microscopic use.

Mr. H. C. MARTIN moved a very hearty vote of thanks to Mr. Midgley, which was seconded by Mr. R. W. SWALLOW, and carried.

Mr. MIDGLEY responded.

The 587th Meeting of the Society was held in the Library on Tuesday, Nov. 5th, 1901, at 7-30 p.m. In the chair, the SECRETARY.

The Minutes of the previous meeting were read and approved.

The SECRETARY read a communication from Sir Clements Markham on "The National Antarctic Expedition Relief Ship."

APPEAL ON BEHALF OF THE NATIONAL ANTARCTIC EXPEDITION RELIEF SHIP.

TO THE FELLOWS OF SCIENTIFIC SOCIETIES.

AFTER several years of strenuous exertion, a National Antarctic Expedition has at last been equipped and sent off, with an efficient staff of officers and scientific specialists, thoroughly qualified to carry out work in the various departments of science interested in Antarctic research.

In order that the expedition may be in a position to complete the work for which it has been organised, it is essential that it should be free to remain away for at least two, and if possible three years, as is the case with the co-operating German expedition. For this end more funds are absolutely necessary (1) to supplement the equipment of the main expedition, and (2) to send out a second ship in the autumn of 1902.

The second ship is indispensable if the expedition is not to return after one year's work. It is required to take out a further supply of coal and other stores, to bring away any members of the expedition who may be incapacitated, and to leave suitable substitutes, as well as to obtain information as to the further plans of the expedition.

But there is another reason which renders a second ship imperatively necessary. Under the trying conditions which have to be faced by the expedition in the Antarctic, disaster may overtake the "Discovery," with fatal results to the members of the expedition, unless relief be sent. In the case of all great Arctic expeditions, except that of Franklin in the "Erebus" and "Terror" (which ended in complete disaster), a second ship was sent out in the second year. It would be criminal to omit such a precaution in the case of the expedition in the "Discovery," which has gone to a region where, in case of disaster, escape is impossible except in a relief ship.

Although an inexpensive whaling vessel will answer the purpose as a second ship, still the further expenditure on this and on the main expedition will be considerable, and the funds in hand are quite inadequate to meet the necessary expenditure.

Several great departments of science are interested in the results of this expedition, and, moreover, the credit of the country is at stake. It is therefore with confidence that I appeal to the members of the various scientific societies for further financial support to enable the expedition to complete its work. In order that we may carry out the objects referred to above, another £20,000 at least will be required, and of this about £6,000 has already been subscribed. If every member of the societies interested would contribute what he can afford there would be no difficulty in completing the sum required.

I appeal to you to fill up the accompanying subscription form for whatever sum you feel you can spare, and return it without delay.

CLEMENTS R. MARKHAM,
President Royal Geographical Society.

1, Savile Row,
London, W., October, 1901.

The SECRETARY announced that Dr. Koetlitz had taken up Dr. Murray's work as Senior Medical Officer of the Antarctic Expedition.

It was announced the Council that day had requested the Rev. S. A. Steinthal to forward a letter of congratulation to His Royal Highness (the

President) and to Her Royal Highness the Duchess of Cornwall and York on the splendid results of their visits to the various British colonies and dependencies.

Mr. ROBERT STEWART addressed the Society on "A Summer Holiday in the North of Ireland with Cycle and Camera," and his address was illustrated with slides made from photographs taken on his tour.

Mr. G. PEARSON moved a hearty vote of thanks to Mr. Stewart, which was seconded by Mr. J. R. SMITH, and was carried unanimously.

Mr. STEWART responded.

The 588th Meeting of the Society was held in the Library, on Tuesday, Nov. 12th, 1901, at 7-30 p.m. In the chair, the SECRETARY.

The Minutes of the previous meeting were read and approved.

The election of the following members was announced:—ORDINARY: Mr. W. J. Hadfield. LIFE: Mr. T. H. Davies-Colley.

Mr. W. HARPER addressed the Society on "Glasgow and the Exhibition."

The DELEGATE (the Secretary) gave a long report on the meeting of the British Association Meeting, 1901, at Glasgow.

Both addresses were illustrated with maps, views, photographs, books, pamphlets, etc.

Hearty thanks were tendered to Mr. Harper and the Secretary. Mr. HARPER responded, and took the opportunity of replying to a number of questions.

The 589th Meeting of the Society was held in the Library, on Tuesday, November 19th, 1901, at 7-30 p.m. In the chair, Mr. M. W. THOMPSTONE.

Captain GREENWOOD, of Glasson Dock, addressed the Society on "The Life of a Wave from its Cradle to its Grave," illustrating his address with lantern views and diagrams.

Questions were asked, which Mr. Greenwood answered.

Mr. H. SOUTHWARD moved a very hearty vote of thanks to Captain Greenwood for his interesting address. The motion was seconded by Mr. G. H. SEED, and carried. Captain GREENWOOD responded.

The 590th Meeting of the Society was held in the Library, on Tuesday, November 26th, 1901, at 7-30 p.m. In the chair, Mr. HARRY NUTTALL, F.R.G.S.

The Minutes of the meetings held on Nov. 12th and 19th were read and approved.

A letter from Mr. Guy Kendall, of the Art Museum, was read.

A communication from the Royal Geographical Society on the Conference of Delegates was read.

CONFERENCE OF DELEGATES OF BRITISH
GEOGRAPHICAL SOCIETIES.

The fourth meeting of the Conference was held in the House of the Royal Geographical Society, on Nov. 12th, 1901. The Societies which nominated Representatives to the Congress were as follow:—

Royal Geographical Society: Sir Clements Markham, Dr. J. S. Keltie.

Royal Scottish Geographical Society: Dr. H. R. Mill.

Tyneside Geographical Society: The Duke of Northumberland, Mr. Herbert Shaw, *Mr. A. F. Ericsson.

Liverpool Geographical Society: *Captain Dubois Phillips, *Mr. James Irvine.

Southampton Geographical Society: Mr. T. G. Rooper, *Mr. P. Milne Stewart.

Sir Clements Markham occupied the chair, and Dr. Keltie acted as secretary.

Letters were read from Captain Phillips and Mr. Milne Stewart expressing regret at their inability to attend.

The paper on "Commercial Geography and Languages," submitted to the previous meeting by Captain Dubois Phillips on behalf of the Liverpool Geographical Society, which had been circulated to the members, was discussed. The force of the statements made in the paper with reference to the unfavourable position of Geography in the educational institutions of the country was recognised by the meeting, though it was pointed out that marked improvements had been made in recent years. It was agreed that if the subject were substantially recognised by the universities and included in their education, it would have the most beneficial influence on middle-class and higher schools, and would probably compel teachers to qualify themselves to teach the subject. Sir Clements Markham read a letter which the Council of the Royal Geographical Society are sending to the Senate of the New University of London, remonstrating against the exclusion of Geography from the Matriculation Examination.

It was decided by the meeting that the best way to improve the position of Geography as an educational subject was to bring influence to bear on universities, colleges, technical institutes, and examining bodies.

It was resolved that, on behalf of the Delegates, the Chairman, Sir Clements Markham, should address a letter to the various universities, and the leading colleges and technical institutes, insisting upon the desirability of recognising Geography in their curricula—special attention being given to practical work in the field—not only on account of its educational value, but with a view to its effective application to various practical interests, such as commerce, economics, colonial development, etc.

Mr. Shaw gave some information concerning the recently-founded Commercial Institute of Newcastle-on-Tyne, in which Geography holds a place of equal importance with other subjects.

It was resolved that in future meetings should be held only when there is some special matter for consideration, and, unless the matter is urgent, the meetings to be held on the day following the Anniversary of the Royal Geographical Society.

* Those members with an asterisk were, for various reasons, unable to attend.

The election of the following new members was announced:—ORDINARY:
Mr. Thomas Banks, Mr. Joseph Berry, and Mr. Jeffrey P. Nuttall.

The following presentations were announced:—

By the publishers: "Twentieth Century Citizens' Atlas." (Parts I., II., III., and IV. By J. G. Bartholomew, F.R.G.S. London: G. Newnes, Limited. 1901.)

By C. H. Bellamy, F.R.G.S.: "The Biographer and Review," August, 1901. (Containing a photograph and biography of Mr. C. H. Bellamy, F.R.G.S.)

By the Geographical Association: "The Geographical Teacher." (The organ of the Association.) Vol. I., No. 1. October, 1901. Edited by A. W. Andrews, M.A., and A. J. Herbertson, Ph.D.

By A. J. Kennedy, F.R.G.S.: *The Los Angeles Daily Times*. (October 30th, 1901.)

By Dr. Lunn for the Publishers: "Travel: Winter Holidays." 1901-2. This is a beautifully-illustrated list of winter excursions, and is full of information

By Dr. R. Schutt: "Mittheilungen Horizontal Pendel-Station." (Hamburg. Nos. 1, 2, 3, 4.)

By the Society: "Saccular-Feir," 1801-1901. "Festschrift den Gönnern, Freunden und Mitgliedern der Gesellschaft als Festgabe dargeboten am." 27th October, 1901. (This beautiful Memorial Volume is illustrated with many plates of the contents of ancient graves.)

By the Publishers: "Bulletin Russe de Statistique Financière et de Législation." Seconde Série. 1^{re} Année. 1901A.

By the Publishers: "Prospecting for Gold: A Handbook of Practical Information and Hints for Prospectors, etc." (By D. J. Rankin, F.R.S.G.S., M.R.A.S. With Illustrations. London; Crosby, Lockwood, and Son. 1901. Price, 7s. 6d. net.)

The CHAIRMAN announced that the response to the circular for subscription to the scheme for a new building, sent to the members, amounted to £3,180.

The Rev. J. W. HEYWOOD, of Ningpo, addressed the Society on "Life in China," illustrating the address with a testimonial, umbrella, silk embroideries, cards, dominoes, pipes for tobacco and opium, nail covers, and many other curiosities, photographs, pictures, and lantern slides.

Mrs. SWALLOW moved a very hearty vote of thanks to Mr. Heywood for his most interesting address. Mr. J. R. BOSWORTH seconded the motion, which was carried. Mr. HEYWOOD responded.

The 591st Meeting of the Society was held in the Library, on Tuesday, December 3rd, 1901, at 7-30 p.m. In the chair, the Rev. S. A. STEINTHAL, F.R.G.S.

The Minutes of the previous meeting were read and approved.

The election of Mr. James Turner as an ordinary member was announced.

The following presentations to the Society were announced:—

By Dr. R. Schutt: "Mittheilungen der Horizontal Pendel-Station." (Hamburg. Nos. 5 and 6.)

By the Publishers: "The Twentieth Century Citizens' Atlas." (No. 5. Gazetteer and Statistics. By J. G. Bartholomew, F.R.G.S. London: George Newnes, Ltd.)

By Mr. J. P. Thomson, F.R.G.S.A.: *The Telegraph*. (Brisbane, Saturday, October 5th, 1901.)

By Mr. Rudolf Falck: "Sunset," October (containing a fine portrait of the late President McKinley) and November, 1901. "Yosemite National Park, California." "The White Pass and Yukon Route to the Golden North." "Correct map of the Southern Pacific Sunset Route and Connecting Lines."

Letters from Mr. J. Howard Reed, Mr. D. B. Munro (Vice-Chancellor of Oxford), and from many others were presented.

DEAR MR. SOWERBUTTS,—I regret that another engagement this evening will prevent me from being present to hear Sir Bosdin Leech, and by that means to revive my own Japanese experiences. However, I hope Sir Bosdin may have a good audience. Kindly apologise for my absence.

I enclose herewith three slides (maps of Japan) which may be of assistance to Sir Bosdin. I think the clearest of the three is one I have had copied from the book of my uncle, Sir Edward Reed, in Japan.

Yours very truly,

J. HOWARD REED.

16, St. Mary's Parsonage,

Manchester, December 3rd, 1901.

SCHOOL OF GEOGRAPHY.

ARRANGEMENTS FOR HILARY TERM, 1902.

The Lectures and Laboratory Instruction will be given in the Old Ashmolean Building, Broad Street.

The Reader in Geography (Mr. Mackinder) will lecture weekly on "The Historical Geography of Europe" (continued), on Mondays, at 12 noon, commencing Monday, January 27th.

The Reader will give informal instruction at hours to be arranged with students.

The Lecturer in Physical Geography (Mr. Dickson) will lecture weekly (1) on "Map Projections," on Fridays, at 10 a.m., commencing Friday, January 24th; (2) on "The Climatic Regions of the Globe," on Saturdays, at 10 a.m., commencing Saturday, January 25th; and (3) "Military Topography," at hours to be arranged.

Practical Instruction in Surveying and Mapping will be given by Mr. Dickson and Mr. Darbishire on Fridays and Saturdays, from 11 a.m. to 1 p.m., and at other hours to be arranged.

The Lecturer in Regional Geography (Mr. Herbertson) will lecture (1) twice weekly on "The Regional Geography of Continental Europe," on Tuesdays and Thursdays, at 12 noon, commencing Tuesday, January 21st; (2) weekly on "The British Isles," on Mondays, at 5 p.m., commencing Monday, January 27th; and (3) weekly on "Types of Land Forms," on Wednesdays, at 12 noon, commencing Wednesday, January 22nd. He will give practical instruction in Regional Geography on Tuesdays and Thursdays, from 10 a.m. to 12 noon; in Geomorphology, on Wednesdays, from 10 a.m. to 12 noon; and at other hours to be arranged. He will also be in

attendance at the School on Mondays, Tuesdays, and Thursdays, from 4 to 6 p.m.

The Lecturer in Ancient Geography (Mr. Grundy) will lecture weekly on "The Topography of Greece in relation to Herodotus and Thucydides," on Saturdays, at 11 a.m., commencing on Saturday, January 25th.

The Lecturer in the History of Geography (Mr. Beazley) will lecture weekly on "The Period of the Great Discoveries, 1486-1650," on Fridays, at 5 p.m., commencing Friday, January 24th.

Oriel College,

November 20th, 1901.

DAVID B. MONRO,

Vice-Chancellor.

Mr. Ammeleet Arsine, Journalist, who is walking round the world, presented his card on the 18th November, and is here reported:—

"Nov. 18th, 1901.

AMMELEET ARSINE,

JOURNALIST.

Who is going to walk round the World on Foot."

Alderman Sir BOSDIN T. LEECH, Kt., J.P., addressed the Society on his recent journey round the world accompanied by Lady Leech and Miss Leech. The address was illustrated with lantern slides prepared from photographs taken by the party on the journey, and by some slides lent by the Rev. J. W. Heywood and Mr. J. H. Reed.

Alderman ROBINSON moved, and Mr. GEORGE HARKER seconded, a very hearty vote of thanks to Alderman Leech, which was carried, and to which Sir BOSDIN LEECH responded.

The following appeared in the *Daily Dispatch*, Dec. 4th, 1901:—

ROUND THE WORLD.

A MANCHESTER KNIGHT DESCRIBES HIS JOURNEY.

FOR close upon a couple of hours last evening Sir Bosdin T. Leech entertained members of the Manchester Geographical Society and others with a chatty account of his recent journey round the world.

Sir Bosdin, together with members of his family, left London in the steamship "Victoria," in February last, and proceeded round by Gibraltar down the Mediterranean and through the Suez Canal to Aden, and thence to Ceylon. From Ceylon the party went on to China. Interesting descriptions of Chinese life and social customs as witnessed in Canton and elsewhere were given. Then followed Sir Bosdin's experiences in Japan, which he described as one of the most progressive of countries with a great future before it. In matters of religion the Japanese are in a transitional state. No country, he said, was more worthy of attention from Christian missionaries than Japan. Both the Shintos and Buddhists, he told his hearers, are very superstitious. Going in a ship they cast papers into the sea. They swallow a picture of Buddha when ill, or for luck a bit of paper with a charm in Chinese on it, which they buy from the priest. Shinto, the national worship, is a compound of nature and ancestor worship.

They worship the sun, the wind, the ocean, fire, food, rivers, trees, etc., also the deified ghosts of princes and heroes, and they beat a gong to attract the attention of the god when they put a contribution into the box. (Laughter.) Buddhism is a form of worship introduced into Japan later, and Diabutsa is the chief god.

From Japan Sir Bosdin went on to San Francisco, and crossing the States to New York reached home after journeying round the world in twenty weeks.

The lecture was illustrated by a large number of photographic views thrown on the screen, and at the close Sir Bosdin was awarded a hearty vote of thanks.

The following appeared in the *Manchester Courier*, Dec. 4th, 1901:—

MANCHESTER GEOGRAPHICAL SOCIETY.

THERE was a crowded attendance of members of the Manchester Geographical Society, in the Society's Library, St. Mary's Parsonage, last night, to hear an address by Sir Bosdin T. Leech on the subject of his journey round the world. The Rev. S. A. Steinthal presided. Sir Bosdin, who was accompanied by his wife and son, left Manchester in February, 1890, and spent eighteen months on the tour. He related his impressions of the various countries visited in a chatty style, and the pleasure of the audience was added to by the exhibition of a series of excellent lantern slides illustrating portions of the journey. The Secretary made the interesting announcement that in response to the appeal for subscriptions towards the £5,000 required to provide a new house for the Society, £3,400 had been received.

The 592nd Meeting of the Society was held in the Library, on Tuesday, December 10th, 1901, at 7-30 p.m. In the chair, the Very Reverend L. C. CASARTELLI, M.A., Ph.D., etc.

The Minutes of the previous meeting were read and approved.

The following presentations and additions to the Library were announced:—

By the Director-General of Military Intelligence, War Office, London: One set of maps of Transvaal and Orange River Colony. (28 sheets; No. 1,367; scale, 1/250,000.) Map of Anglo-Egyptian Sudan. (No. 1,567; scale, 1/1,000,000.) Maps of Sudan. (16 sheets; No. 1,489; scale, 1/250,000.)

By the Royal Geographical Society: Map of part of Abyssinia and the Sudan, surveyed by Major C. W. Gwynn, R.E., assisted by Lieut. L. C. Jackson, R.E. (1899-1901; scale, 1/1,000,000.)

Added to the Library: "The Story of the Wanderings of Atoms," by M. M. Pattison Muir, M.A. "The Story of Wild Flowers," by G. Henslow. "The Story of Thought and Feeling," by F. Ryland. "The Story of Life's Mechanism," by H. W. Conn. "The Story of Ice," by W. A. Brend. "The Story of Eclipses," by C. F. Chambers, F.R.A.S. "The Story of the Cotton Plant," by F. Wilkinson, F.G.S. "The Story of the Bird Life," by W. P. Pyecraft. "The Story of Art in the British Isles," by J. E. Phythian. "The Story of the Alphabet," by Edward Clodd.

The Right Rev. BISHOP HANLON (a member of the Society), of Uganda, addressed the members on his experiences in Uganda, on the now completed railway from Mombasa, and on the conditions and possible sources of commerce in the Protectorate. His address was illustrated with a number of fine lantern views made from the Bishop's photographs.

Mr. FRED TAYLOR moved a very hearty vote of thanks to Bishop Hanlon for his interesting and most instructive address. Mr. PEARSON seconded the motion, which was carried, and the BISHOP responded.

The 593rd Meeting of the Society was held in the Library, on Tuesday, December 17th, 1901, at 7-30 p.m. In the chair, the Very Rev. L. C. CASARTELLI, M.A., Ph.D., one of the Vice-Presidents.

The Minutes of the previous meeting were read and approved.

The election of Messrs. M. S. Bles, J.P., William Mason, and J. B. Sutcliffe was announced.

The following presentations to the Society were announced:—

By the Right Rev. Henry Hanlon, Bishop of Teos: Plan of Section of the Mombasa-Victoria (Uganda) Railway.

By the Manchester Ship Canal Company: Official Sailing List, No. 27, December (and a number for distribution).

By Messrs. Masson and Co., Paris: D'Alger au Congo par le Tchad, par F. Foureau. 1902.

By Messrs. Thomas Cook and Son: "Cook's Excursionist and Home and Foreign Tourist Advertiser," Vol. XLI., No. 12, December, and seven other pamphlets.

The following letter was read:—

41, Mill Lane, Churchtown, Southport,

Dec. 15th, 1901.

DEAR SIR,—On Mrs. Wakefield's behalf I regret to inform you that Rev. T. Wakefield died this evening.

The interment will take place on Wednesday afternoon, at 3 o'clock, at Churchtown. There will be a service in the Chapel at 2 o'clock.

I remain, yours faithfully,

A. E. JACQUES.

Eli Sowerbutts, Esq.

This announcement was received with deep regret, and it was resolved that a letter of sympathy and of condolence should be sent to Mrs. Wakefield and the family on this sad occasion. The motion was moved by Mr. J. H. LEWIS, and seconded by Mr. R. W. SWALLOW, B.Sc., and was carried.

Mr. Swallow was appointed to represent the Society at the funeral.

Other communications were read, amongst them an invitation to the members to attend an address on "Siam," in the Mayor's Parlour. A copy of this had been sent out to the members and a large number attended the meeting.

Thanks were passed to the President of the Chamber for his invitation.

MANCHESTER GEOGRAPHICAL SOCIETY.

H.R.H. the Crown Prince of Siam will attend a meeting in the Lord Mayor's Parlour, Town Hall, on Tuesday, the 17th December, at 11-30 a.m., when F. Verney, Esq., Councillor of the Siamese Legation, will deliver an

address on "The Geography and Commerce of Siam." Through the kindness of the President of the Chamber of Commerce, members of the Society are invited to this meeting.

The Rev. F. A. REES addressed the Society on "North Italy," and illustrated his address with a number of fine lantern views, which had been specially prepared. The address was full of interest.

Mr. H. SOUTHWARD moved that very hearty thanks be given to Mr. Rees for his most valuable address. Mr. J. R. SMITH seconded the motion, and the Chairman, in putting it, said the address had been a source of very great pleasure to him, and he thanked Mr. Rees for his very kindly references to the people of Italy. The motion was carried, and Mr. REES responded.

The 594th Meeting of the Society was held in the Library, on Friday, December 20th, 1901, at 6 p.m. In the chair, Mr. J. H. LEWIS.

Mr. J. HOWARD REID delivered the Annual Children's Lecture on "With Lord Roberts to Pretoria," and illustrated his address with lantern slides from photographs and with a series of cinematograph views.

There was a large attendance of children, who were very much delighted.

Very hearty thanks were tendered to Mr. Reid and the demonstrators for the most interesting address and illustrations.

Mr. REID responded.

NEW BOOK.

DESCRIPTIVE GEOGRAPHIES FROM ORIGINAL SOURCES. NORTH AMERICA.

Selected by F. D. HERBERTSON, B.A. Edited, with Introduction, by A. J. HERBERTSON, Ph.D., &c. Preface, List of Contents, and 16 Illustrations. Introduction xxxvi. pp., 256pp. Bibliography of Extracts 8pp. and Index. London: A. and C. Black, 1901. Price 2s. 6d. each. Part of a series, of which the above, Africa, and Central and South America are now ready.

THE idea of this series of readers is fairly well carried out. Every selector of passages would probably select others. The range is taken as the Far North, Canada, the United States, the Eastern Highlands and Coastal Plains, the Central Plains, the Cordilleras of British North America and the United States, Mexico, and is completed with typical railway journeys in the United States. The introduction is a general geographical description of the Continent, and each section is preceded by special descriptions of the features peculiar to the region.

"The series is intended as a stimulus to, and not as a substitute for, individual reading. . . . With regard to the best method of using the series, the editors do not presume to dictate to teachers; but for those who may wish to use it as a class-book an introduction is prefixed, summarising the geography of each Continent, and referring for fuller details to the illustrative passages."

The value of the books will be in the way they are used.

They can hardly supplant the fine series of reading books on Geography written by one hand, carefully graded and in many cases admirably written, but there may be a place found for this series, and at all events there is great variety of style in the extracts from the numerous writers laid under contribution.

Both the selector and editor are to be complimented on their selections.

*LIST OF MAPS, BOOKS, JOURNALS, &c.,*ACQUIRED BY THE SOCIETY FROM JANUARY 1ST TO DECEMBER 31ST, 1901.

MAPS.

EUROPE.

Map of Central Europe. Issued by T. Cook and Sons, London. * The Publishers.

Norway. Special "Kyst Kart." Scale, 1/50,000. Sheets, 37¹, 43¹, 52. Index Map. Scale, 1/4,000,000. * Norges Geographiske Opmaalng.

Norway. Topografisk Kart over Kongeriget Norge. Scale, 1/100,000. Sheets, 1 C, 3 D, 26 D, 32 A, 32 D, 33 A, 33 C, 55 B, H and I 12, H 16, J 16, K 19, Y 5, Z 3, Z 4, ö 3, ö 4. Index Map. Scale, 1/2,400,000. * Norges Geographiske Opmaalng.

Norway. Geologisk Kart. Scale, 1/100,000. Sheet, 25 D. * Norges Geographiske Opmaalng.

ASIA.

Map of Central Kurdistan, by Major F. R. Maunsell, R.A. Scale, 1/1,000,000, or 15.78 miles to an inch. London: Royal Geographical Society, 1901. * The Society.

Part of Tibet and Sin-Chiang (Chinese Turkestan), showing the Surveys of Captain H. H. Deasy from 1896-1899. Scale, 1/1,500,000, or 23.6 miles to an inch. London: Royal Geographical Society, 1900. * The Society.

Sketch Map of part of South-western China, illustrating the journey of E. Amundsen, 1898-1899. Scale, 1/1,500,000. London: Royal Geographical Society, 1900. * The Society.

AFRICA.

Carte de Bas-Congo à l'échelle du 100,000: par H. Droogmans, Secrétaire-Général du Département des Finances de l'Etat Indépendant du Congo. In 15 sheets. * The Author.

Mission Scientifique du Ka-tanga. Itinéraire parcouru du 24 Mars, 1900, au 3 Juillet, 1900. Echelle de 1/1,000,000. Observateurs: Lieut. Ch. Lemaire, Mr. F. Michel, et Mr. L. Questiaux. Brussels: Etat Indépendant du Congo. * Lieut. Ch. Lemaire.

- Mission Scientifique du Ka-tanga. Itinéraire parcouru du 5 Août, 1898, au 2 Mars, 1900. Echelle de 1/1,000,000. Observateurs: Lieut. Ch. Lemaire, Mr. F. Michel, et Mr. L. Questiaux. Brussels: Etat Indépendant du Congo. *Lieut. Ch. Lemaire.
- Map of the Barue Country, from Inyanca to the Zambezi River, from a Survey by Lieut.-Colonel A. J. Arnold, D.S.O., 1900. Scale, 1/1,000,000. London: Royal Geographical Society. *The Society.
- Map of the Sebungu and Mafungabusi Districts, from a Survey by A. J. C. Molyneux, F.C.S., 1901. Scale, 1/1,000,000. London: Royal Geographical Society. *The Society.
- Plan of Section of the Mombasa-Victoria (Uganda) Railway, 1900. London: Intelligence Division, War Office. No. 1,481. *The Right Rev. Hy. Hanlon, Bishop of Teos.
- Map to illustrate a journey from "Zeila to Lake Stefanie, North-east Africa," by James J. Harrison and others, 1899 and 1900. Scale, 1/1,000,000. London: Royal Geographical Society. *The Society.
- Map. "Part of Abyssinia and the Sudan," surveyed by Major C. W. Gwynn, R.F., assisted by Lieut. L. C. Jackson, R.E., in 1899, 1900, and 1901. Scale, 1/1,000,000. London: Royal Geographical Society. *The Society.
- Sketch Map of a journey from Addis Abeba to the Sobat River, by Captain M. S. Wellby, 18th Hussars, 1899. Scale, 1/2,500,000. London: Royal Geographical Society, 1900. *The Society.
- The Sobat River and part of the Blue Nile, from the surveys of Major Austin and Major Gwynn, 1900. Scale, 1/1,000,000. London: Royal Geographical Society, 1901. *The Society.
- Map of the Bahr el Gebel, from a "Report as to Irrigation Projects," by Sir Wm. Garstin, K.C.M.G., 1901. Scale, 1/1,000,000. *The Royal Geographical Society.

AMERICA.

- Sketch Map of the Canadian Rocky Mountains, by J. Norman Collie, F.R.S. Scale, 1/500,000. London: Royal Geographical Society, 1901. *The Society.
- Map of "Great Bear Lake and route thence to Great Slave Lake," from track survey in 1900. by J. Macintosh Bell, M.A. Scale, 1/2,000,000. London: Royal Geographical Society. *The Society.
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 H Yeats, John, LL.D.
 Young, Arthur
 Young, G. H.
 Zimmern, Fritz

THE
MANCHESTER GEOGRAPHICAL SOCIETY.

RULES.

I. OBJECT AND WORK.

The object of the Manchester Geographical Society is to promote the study of all branches of Geographical Science, especially in its relations to commerce and civilisation.

The work of the Society shall be :—

1. To further in every way the pursuit of the science; as, by the study of official and scientific documents, by communications with learned, industrial and commercial societies, by correspondence with consuls, men of science, explorers, missionaries, and travellers, and by the encouragement of the teaching of geography in schools and colleges.

2. To hold meetings at which papers shall be read, or lectures delivered by members or others.

3. To examine the possibility of opening new markets to commerce and to collect information as to the number, character, needs, natural products and resources of such populations as have not yet been brought into relation with British commerce and industry.

4. To promote and encourage, in such way as may be found expedient, either alone or in conjunction with other Societies, the exploration of the less known regions of the earth.

5. To inquire into all questions relating to British and Foreign colonisation and emigration.

6. To publish a Journal of the proceedings of the Society, with a summary of geographical information.

7. To form a collection of maps, charts, geographical works of reference, and specimens of raw materials and commercial products.

8. The Society shall not enter into any financial transactions beyond those necessarily attached to its declared object, and shall not make any dividend, gift, division, or bonus in money unto or between any of its members.

II. ORGANISATION.

9. The Society shall consist of ordinary, associate, corresponding, and honorary members.

10. A Council shall be chosen annually from the ordinary members to conduct the affairs of the Society. It shall consist of a President, four or more Vice-Presidents, a Treasurer, two or more Honorary Secretaries (including a Secretary for Foreign Correspondence), and twenty-one Councillors.

11. There shall be three Trustees elected by the Society, who shall hold office until death, disability, insolvency, or resignation. They shall be members of the Council by virtue of their office.

12. Any vacancy occurring in the Council during the current year may be filled up by the Council.

III. ELECTION OF MEMBERS.

13. Every candidate for admission into the Society as an ordinary or an associate member must be proposed by a member. The proposal shall be read out at the next Ordinary Meeting of the members, and any objection shall be forwarded in writing to the Secretary within seven days.

14. The election of members is entrusted to the Council. The names of those elected shall be announced from the chair at the next Ordinary Meeting after the election.

15. The Secretary shall within three days forward to every newly-elected member notice of his election, a copy of the Rules of the Society, and a card announcing the days on which the Ordinary Meetings will be held during the session. But the election of an ordinary or associate member shall not be complete, nor shall he be permitted to enjoy the privileges of a member, until he shall have paid his first year's subscription. Unless such payment be made within three calendar months from the date of election the election shall be void.

16. The Council shall have power to elect honorary and corresponding members.

17. Women shall be eligible as members and officers of the Society.

IV. PAYMENTS.

18. Any ordinary member shall pay an annual subscription of £1 1s., or he may compound by one payment of £10 10s. An associate member shall pay an annual subscription of 10s. 6d. The Society's year shall begin on the first day of January.

19. Members shall not be entitled to vote or to enjoy any other privilege of the Society so long as their payment shall continue in arrear, but associate members shall not vote nor shall they take any part in the government of the Society.

20. The first annual payment of a member elected in November or December shall cover his subscription to the 31st December in the year following.

21. On the first day of January in each year there shall be put up in the rooms of the Society a complete list of the members with the amount of their subscription due, and as the amounts are paid the fact shall be marked on the list.

22. Notice shall be sent to every member whose subscription shall not have been paid by the first of February, and if the arrears are not discharged by the first of July the Council may remove the member from the list of members. Any member, whose subscription is in arrear for two years shall not be entitled to receive the Journal of the Society.

V. MEETINGS.

23. The meetings of the Society shall be of three kinds—Ordinary, Annual, and Special.

24. In all meetings a majority of those present shall decide all questions, the President or Chairman having a casting vote in addition to his own.

ORDINARY MEETINGS.

25. The Ordinary Meetings of the Society shall be held once a month, from the month of October to the month of May, or oftener, if judged expedient by the Council.

26. All members whose subscriptions are not in arrear shall have a right to be present. All ordinary members shall have the privilege of introducing one visitor.

27. The order of proceedings shall be as follows:—

- (a) The minutes of the last meeting to be read and if correctly recorded they shall be signed by the Chairman.
- (b) Presents, whether of money, books, maps, charts, instruments or specimens made to the Society to be announced.
- (c) The election of new members to be declared and the names of candidates to be read.
- (d) Papers and communications to be read and discussed.

28. At these meetings nothing relating to the rules or management shall be brought forward, but the minute book of the Council shall be on the table at each meeting for the inspection of any member, and extracts therefrom may, with the consent of the chairman, be read to the meeting on the requisition of any member.

29. On occasions of exceptional interest the Council may make provision for a larger admission of visitors.

ANNUAL MEETINGS.

30. The Annual Meeting of the members shall be held at such time and place as the Council shall determine.

31. Fourteen days' notice of such meeting shall be sent to every member within the United Kingdom who has given his address to the Secretary, and notice of the meeting shall be advertised in such newspapers as the Council may direct.

32. The object of this meeting shall be to receive the Annual Report of the Council and the Treasurer's Balance Sheet, to hear the President's address, to elect the Council and officers for the ensuing year, and to transact any other business.

33. Any two ordinary members may nominate candidates for the Council or for office not later than one week prior to the day of election, and the names of candidates so nominated shall be at once put up in the rooms of the Society. The election of the Council and officers shall be by ballot.

SPECIAL GENERAL MEETINGS.

34. The Council may call a Special General Meeting of the Society whenever they shall consider it necessary, and they shall do so if required by 20 ordinary members.

35. A week's notice of the time and object of every Special Meeting shall be sent to all members. No other business shall be entertained than that of which notice has been thus given.

36. Twenty ordinary members shall form a quorum.

VI. COUNCIL AND OFFICERS.

THE COUNCIL.

37. The government of the Society shall be entrusted to the Council, subject to the rules of the Society.

38. The Council shall annually elect a Chairman and Vice-Chairman.

39. The President or the Chairman, or any three members of the Council, may at any time call a meeting thereof, to which every member of the Council shall be summoned.

40. Seven shall form a quorum.

41. In order to secure the most efficient study and treatment of the various subjects which constitute the chief work of the Society, the Council may appoint Committees for special purposes. These Committees, with the approbation of the Council, may associate with themselves any persons—whether members of the Society or not—from whom they may desire to obtain special assistance or information. The Committees shall report to the Council the results of their proceedings.

42. The President, Chairman, Vice-Chairman of the Council, and the Honorary Secretaries, shall, by virtue of their offices, be members of all Committees appointed by the Council.

PRESIDENT AND VICE-PRESIDENTS.

43. The President is, by virtue of his office, the chairman of all the meetings of the Society. In the absence of the President, one of the Vice-Presidents may preside.

CHAIRMAN OF THE COUNCIL.

44. It is the duty of the Chairman of the Council to see that the rules are properly observed, to call for reports and accounts from Committees and Officers, and to summon, when necessary, special meetings of the Council and of Committees.

TREASURER.

45. The Treasurer has the charge of all accounts; he shall pay all accounts due by the Society after they have been examined and approved by the Council.

46. He shall see that all moneys due to the Society are collected, and shall have power, with the approval of the Council, to appoint a collector. All moneys received shall be immediately paid to the bankers of the Society.

47. The bank passbook and the book of accounts shall be laid upon the table at every ordinary meeting of the Council.

48. The accounts shall be audited annually by two members, who shall be elected at an ordinary meeting at least one month before the Annual Meeting.

SECRETARIES.

49. The duty of the Honorary Secretaries shall be:—

- (a) To conduct the correspondence of the Society and of the Council.
- (b) To attend the meetings of the members and of the Council, and minute their proceedings.

- (c) At the ordinary meetings, to announce gifts presented to the Society since their last meeting; to read the names of all new members and of candidates for admission, and the papers communicated to the Society, which have been directed by the Council to be read.
- (d) To have immediate superintendence of all persons employed, to make arrangements for the meetings of the Society, and to take charge of all maps, books, furniture and other effects.

50. It shall be the more especial duty of one of the Honorary Secretaries to conduct, as may be directed by the Council, correspondence with Foreign Societies, and with persons resident abroad.

51. In addition to the Honorary Secretaries, there shall be a paid Secretary appointed by the Council, whose duties shall be to assist the Honorary Secretaries, to issue the notices of the Council and of the Society, and to act under the instructions of the Council.

The foregoing Rules, as now amended, were approved and adopted at a meeting of the members of the Society, of which due notice had been given to the members, held in the Town Hall, Manchester, Wednesday, October 3rd, 1894.

(Signed) GEORGE, *President.*
 S. ALFRED STEINTHAL, *Chairman.*
 F. ZIMMERN, *Honorary Secretary.*
 JAS. D. WILDE, M.A., *Honorary Secretary.*
 ELI SOWERBUTTS, *Secretary.*

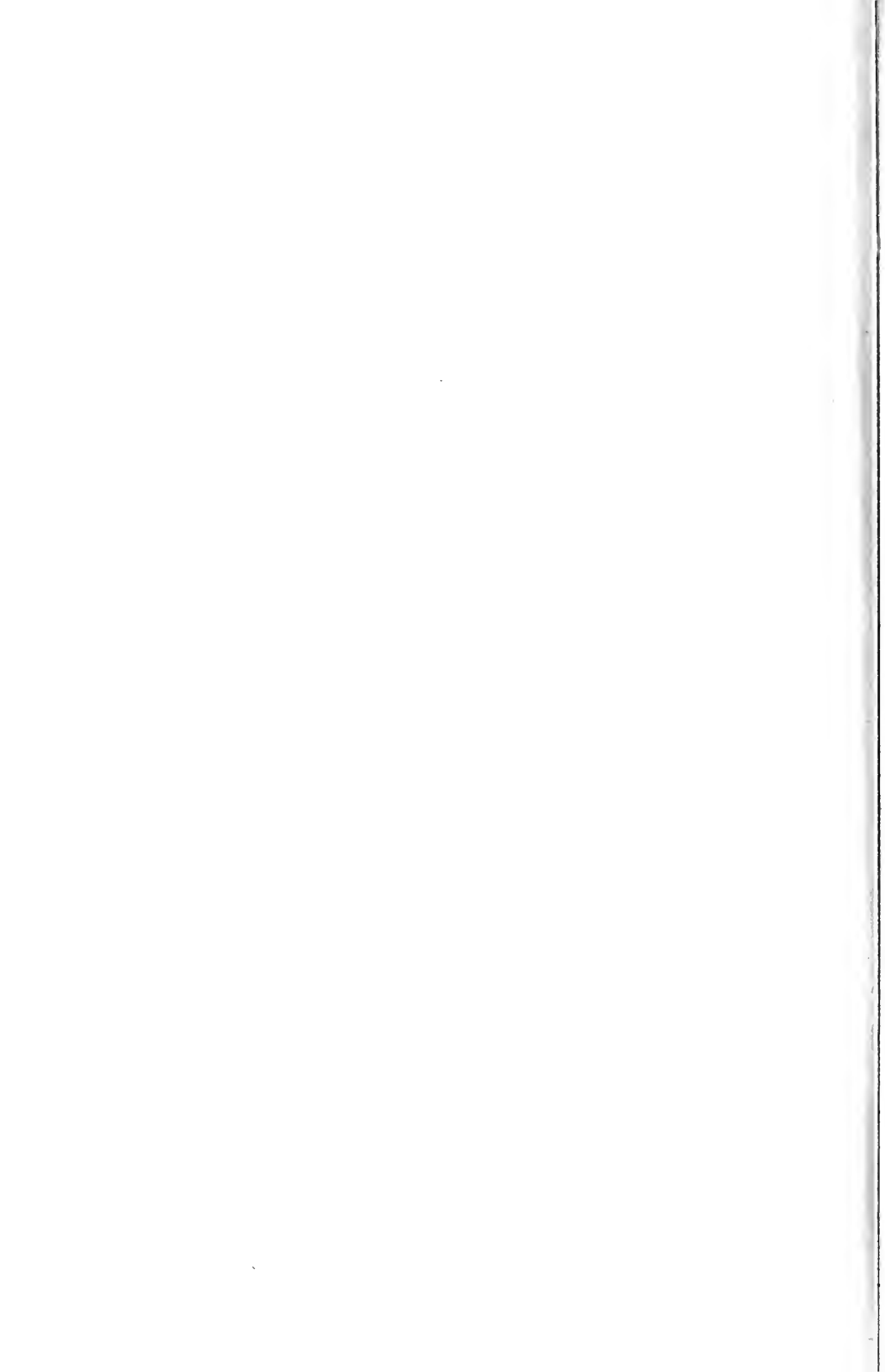
[COPY.]

It is hereby certified that this Society is entitled to the benefit of the Act 6 and 7 Vict., Cap. 36, intituled "An Act to exempt from County, Borough, Parochial, and other Local Rates, Lands and Buildings occupied by Scientific or Literary Societies."

Seal of Registry of
Friendly Societies.

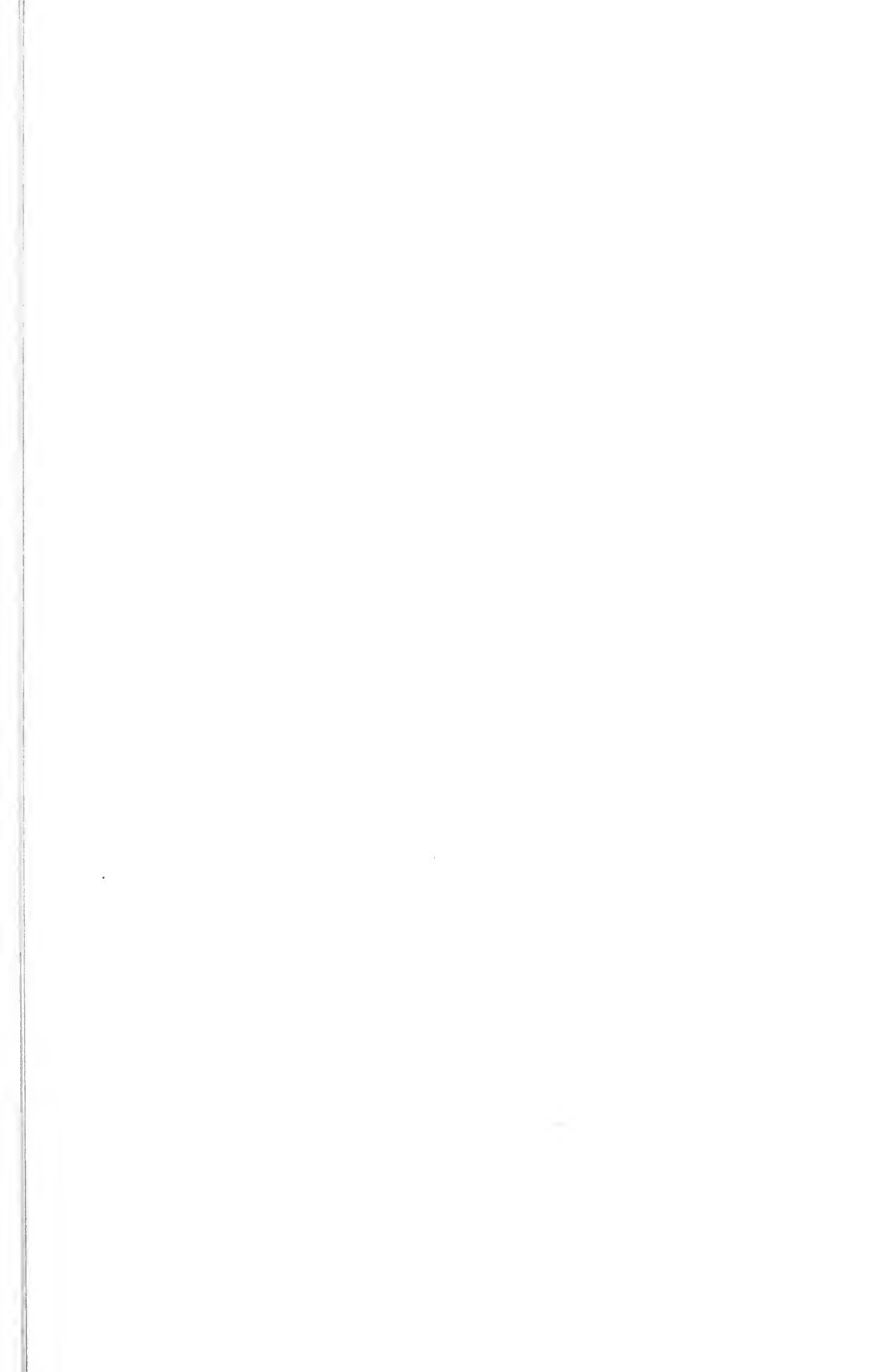
This 15th day of January, 1895.

E. W. B.











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